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THE COPPER-PLATES OF THE FOLIO EDITION OF AUDUBON'S 'BIRDS OF AMERICA,' WITH A BRIEF SKETCH OF THE ENGRAVERS.

BY RUTHVEN DEANE.

I.

THE engraving of the copper-plates for the elephant folio edition of the 'Birds of America' occupied the time between 1827 and 1838 when the 435 plates were completed. These plates were afterwards sent to America and stored in a warehouse in New York City. In 1845 many of these plates were seriously damaged by fire. In a letter from Spencer F. Baird to Audubon, dated Carlisle, Penn., August 4, 1845, he writes: "It is with the sincerest regret that I see by the papers that your copper-plates were injured or perhaps ruined by fire which occurred a few weeks ago."

Miss M. R. Audubon informs me that in 1851–52 when her grandfather's new house was built, a fire-proof vault, detached from the other buildings. was put up for them, and there they remained until the death of her father in 1862, when they were sold.

Under date of February 10, 1908, Miss Grace H. Dodge writes me that the plates were stored in the warehouse of Phelps, Dodge and Company, New York, about 1865, and at that time her father, the late William E. Dodge, had them sorted and presented a number of those that were in the best state of preservation to several colleges, museums, friends and members of his family.

The probabilities are that the majority of the plates were shipped from the New York warehouse to the Ansonia Brass and Copper Company, Ansonia, Conn., of which company Mr. Dodge was president, and I am indebted to Mr. Charles A. Cowles, Ansonia, for a most interesting account of how he was the means of saving several of these plates from being thrown into the smelting furnace and converted into copper bars. I quote from Mr. Cowles letter of March 7, 1907: "The story of the saving of these plates from a smelting furnace will probably interest you. Some time about the year 1873, there was found a number of the Audubon copper-plates among the scrap copper sent to the refinery of the Ansonia Brass & Copper Company, at Ansonia, Conn., to be converted into copper bars. I am of the opinion that the number included the complete set of plates engraved by Robert Havell for the 'Birds of America.'

"At that time I was about fourteen years old. I was beginning the study of taxidermy, and was naturally deeply interested in birds. I happened to be at the refinery watching the process of loading one of the furnaces, and noticed on one of the sheets of copper that a man was throwing into the furnace, what appeared to me to be a picture of a bird's foot. I took the plate from him, cleaned it with acid, and thereupon discovered the engraving, or as I termed it, the picture, of a bird (Plate CVI, Black Vulture). I made an immediate but unsuccessful request to the foreman of the furnace not to melt the plates; and then I appealed to the superintendent, but without avail. I next brought the matter to the general manager of the concern, my father, from whom I received no encouragement. This sort of treatment was evidently what I needed, for I hastened back to the works in a state of mind so determined that I succeeded in having all of the plates that had not been melted removed to a place of safety. This occurred in the spring of the year; and the plates remained undisturbed until the annual inventory was taken the first of the following year. At that time the question of the disposition of the plates was brought up. I appealed to my mother and interested her to such an extent that she drove to the factory and looked at one of the plates. She of course recognized that they were Audubon plates; and instructions were given by my father to keep them intact. The plates

were subsequently submitted to a treatment which removed all oxidation and then taken to the main office of the company, and, to the best of my recollection, distributed as follows: Mr. Wm. E. Dodge, president of the company, had a few plates sent to the American Museum of Natural History, New York City, and a few plates to the Smithsonian Institution, Washington, D. C., and I think he retained one or two for himself. The remainder of them, with the exception of two, my father kept; and they have since come into my possession by purchase from the estate. The two plates just excepted were Nos. 22 and 82 and they particularly struck my fancy, so much so that when the plates were first discovered I managed to secure them on the quiet, cleaned them myself and hid them; and when the plates were distributed no one knew of the existence of these two and they later became my property.

"I have sent two plates to Miss M. R. Audubon; and there are two others that I think I could locate. This will make nine plates that I know of, besides the plates in the museums previously mentioned and those that may be in the possession of the heirs of Mr. Wm. E. Dodge.

"Some of the plates in my possession are in very much better condition than the rest of them; and I have no doubt but what good imprints could be obtained if it was thought desirable to use them for that purpose."

A number of the plates were unquestionably sold from New York before they were shipped to Ansonia, as Mr. John H. Sage, Portland, Conn., informs me that two in his possession were presented to him in 1893 by Mr. Thomas R. Pickering, president of the Pickering Governor Company of Portland, who purchased them with others, some years before that date, for old metal in a junk shop in New York City. All of these plates were scratched and bent, but he put those presented to Mr. Sage and two others to the Wesleyan University, Middletown, Conn., in as good condition as possible. Such as were utterly ruined, were melted up in the works.

In the 'Forest and Stream' of September 12, 1896, is the following note on the copper-plates.

"*Audubon's Plates sold for Junk.*

Boston, Sept. 4, 1896.

"EDITOR FOREST AND STREAM:— I notice in your last issue you announce you propose to publish for the benefit of 'Forest and Stream' readers some of the Audubon pictures, and it reminds me that over twenty-five years ago our house had sent them from New York six of the original copper plates of Audubon's birds as sample of the lot, which were to be sold for old metal. They were in very good condition, and by a very little retouching could have been used again. We thought it a shame to destroy them and tried to get some of our Boston publishers to purchase them for legitimate use, but failed in so doing. James R. Osgood [1] almost was persuaded, but we finally sent them back to New York, as we would not consent to be instrumental in their final destruction. Whatever became of them eventually I never heard, or if I did have forgotten.

"I remember one of the sample plates we had was the bald eagle, and I managed to take a hand-rubbed copy from it. These plates were the Elephant Edition. I think our correspondents in New York at the time, of which there is one still living, might remember where they went to, for the senior took the same views of our house and thought it vandalism to destroy them: but as there were several tons in all, their value then for old metal, copper being so high in price, amounted to a good sum.

"RENIGNOLDS [E. R. SHATTUCK]."

As a matter of record of the present resting place of such of these plates as I have been able to locate, I append the following list. In addition to these thirty-seven plates, Mr. Cowles has record of two which he hopes to locate.

	Plate.	*Present location.*
Canada Goose.	CCLI.	American Museum of Natural History, New York.
Hutchins's Goose.	CCLXXVII.	"
Mallard.	CCXXI.	"
Wild Turkey, female and young.	VI.	"
Great Northern Diver or Loon.	CCCVI.	"
Snowy Owl.	CXXI.	"
Hawk Owl.	CCCLXXVIII.	"
Louisiana Hawk.	CCCXCII.	"
Sooty Albatross.	CCCCVII.	"

[1] James Ripley Osgood, publisher, born Feb. 22, 1836, died May 18, 1892.

	Plate.	*Present location.*
Rough-legged Falcon.	CCCCXXII.	Princeton University, Princeton, N. J.
Raven.	CI.	"
Red-shouldered Hawk.	LVI.	"
Three-toed Woodpecker (banded)	CCCCXVII.	"
Canadian "		
Phillips's "		
Maria's "		
Harris's "		
Audubon's "		
American Scoter Duck.	CCCCVIII.	Charles A. Cowles, Ansonia, Conn.
Herring Gull.	CCXCI.	"
Labrador Falcon.	CXCVI.	"
Black Vulture.	CVI.	"
Marsh Hawk.	CCCLVI.	"
Snow Goose.	CCCLXXXI.	Miss M. R. Audubon, Salem, N. Y.
Great White Heron.	CCLXXXI.	"
American Robin.	CXXXI.	Smithsonian Institution, Washington, D. C.
Chuck-wills-widow.	LII.	"
Virginia Partridge.	LXXVI.	"
Great Blue Heron.	CCXI.	"
Scarlet Ibis.	CCCXCVII.	"
Whooping Crane.	CCXXVI.	"
Trudeau's Tern. / Havell's Tern.	CCCCIX.	Wesleyan University, Middletown, Conn.
Common Tern.	CCCIX.	"
Arctic Jager.	CCLXVII.	John H. Sage, Portland, Conn.
Ruby-throated Hummingbird.	XLVII.	"
Wild Turkey, male.	I.	Miss Grace H. Dodge, New York City.
Blue Bird.	CXIII.	"
Cowpen Bird.	CCXII.	"
Double-crested Cormorant.	CCLVII.	Rev. D. Stuart Dodge, Simsbury, Conn.
Pomarine Jager.	CCLIII.	Cleveland H. Dodge, New York City.
Night Heron.	CCXXXVI.	"
Brant Goose.	CCCXCI.	Mrs. William Church Osborn, New York City.

I wish to express my sincere thanks to those who have rendered me assistance in securing information on this interesting subject.

II.

ROBERT HAVELL.

Robert Havell was born in Reading, Berkshire, England, November 25, 1793. He was in business with his father Daniel Havell until 1828 when the partnership was dissolved. It was at about this time when Audubon transferred the work of the engraving and coloring of his plates of the 'Birds of America' from W. H. Lizars, who had already issued the first ten, to Havell. His place of business was located at 77 Oxford St., London, opposite the Pantheon, and known as the Zoölogical Gallery, and it was here that the great work was carried on and completed. Besides the business of engraving and the publishing of works of art, an agency was formed for the sale of specimens and other objects connected with natural history. A general business was also done in water-color paints, brushes, crayons, albums, books, etc. In 1812, father and son published a series of 'Picturesque Views on the River Thames' engraved by them in aquatint from drawings by Robert's cousin, William H. Havell, who had a reputation as a painter in water-colors.

Here he remained until September, 1839, when he came to America with his wife and daughter. Under date of March 9, 1906, his daughter, Mrs. Amelia J. Lockwood[1] of New York, wrote me that they sailed in the ship 'Wellington' and upon their arrival traveled up the Hudson River to West Point and other towns, returning after a few weeks and visited at Mr. Audubon's, who had also returned to America and was residing in White St., New York. After residing in Brooklyn, N. Y., for two years, in 1841 Havell purchased a home in Sing Sing (now Ossining), a beautiful spot commanding a fine view of the Hudson River and Palisades, and named it 'Rocky Mount.' There he remained until 1857, when he purchased land and built another home at Tarrytown,

[1] Amelia Jane Lockwood, born 1826, died New York City April 6, 1907; widow of the late Brig. Gen. Munson Ingersoll Lockwood, Commander of 'The Lockwood Light Guard of Ossining.'

Robert Havell has a sister, Miss Marion Elington Havell, now living in New York City.

N. Y., remaining there until his death November 11, 1878, in his eighty-fifth year, and was buried in Sleepy Hollow Cemetery with his wife, who died July 10, 1878. Their first boy was named Audubon, and the naturalist stood god-father, holding the child while being baptised, in St. James church, London. This boy died two years later.

After coming to America, Havell devoted much time to painting in oils and a short time before his death gave an exhibition and sale at his home, of some seventy-five paintings representing landscapes, panorama views and ornithological subjects. The titles of some of these were 'Sun Set on the Hudson,' 'Life and Death of the Pines' (a forest scene in Canada; the old pines dead and the young pines springing up amid their graves), 'Indians gathering Wild Rice,' panorama views of 'East River' and 'Niagara,' 'Hawk attacking Mallard Ducks,' 'Death of the Warrior' (White-headed Eagle dying, and Canvasback Ducks trying to protect their young), 'Carolina Doves courting.' Not long since some of Havell's paintings were still in possession of his grandson, who also has the silver loving-cup which Audubon presented to his friend and engraver on the completion of the second volume. On this cup is engraved, "To Robert Havell, from his friend J. J. A. 1834."

Havell's skill and patience during the eleven years which the publishing of this magnificent work occupied, won for him the reputation he so justly deserved. Prof. John Wilson [1] (Christopher North) in his review of the work in Blackwood's 'Edinburgh Magazine,' Vol. XXX, 1831, says: "Mr. Havell is an engraver of great merit, and his skill has found noble employment in perpetuating the creations, for they are all full of imaginations, of the 'American Woodsman.' We have heard some of our best engravers speak in the highest terms of the execution of the plates that have appeared since the work came into the hands of Mr. Havell. Audubon first employed Mr. Lizars of Edinburgh; but that admirable artist himself recommended his friend to get the work executed in London that it might have the advantage of his own personal superintendence during the first years of its progress."

As it required over seventy-six thousand plates for the one hun-

[1] Prof. John Wilson, born Paisley, May 18, 1785; died Edinburgh, April 3, 1854. Frequent contributor to Blackwood's Magazine for many years from 1817.

dred and seventy-five copies [1] which are supposed to have been published, it is said that Havell was required to employ the services of over fifty persons. Notwithstanding the time and care which the engraver must have devoted to this mammoth undertaking, were it not for the constant and careful attention of Audubon in watching all details as the plates were executed, the work would not have the great reputation which it now bears.

Mr. Havell brought to America a copy of the 'Birds of America,' and it is said that every plate was carefully selected by himself. It remained in the family many years and was finally sold to Francis and Company, booksellers, New York. It was afterwards purchased by Dr. Gurdon W. Russell, Hartford, Conn., who presented it to the library of Trinity College July 10, 1900, after it had been in his possession for some twenty years.

I am much indebted to Mr. Robert Havell Lockwood, grandson of the engraver, for presenting me with the following hitherto unpublished letter, Audubon to Havell. It was written seven months prior to Havell closing up his business and sailing for America with his family.

Audubon to Havell.

Edinburgh, Feb. 20th, Monday, 1839.

My dear Mr. Havell

I perceive by the date of your letter of the 16th instant that you must have been some days beyond my expectations, in the receiving of my parcel to you, and that on that account my letter of Saturday last crossed yours of the same date. I thank you for what you say as regards the balance in my favor at Wright and Co.

Does Henry sail from *London Docks* or from *Portsmouth*? and pray what is the name of the Captain of the 'Wellington'? I do not precisely understand what you mean by the *loose sets* which you desire to know how they should be packed? let me hear what they are and how many of them by return of mail. The *five* perfect

[1] I have record of the present resting place of seventy-five copies owned in this country. With the exception of a very few sets, they are complete and in good condition. A set in the library of the Mechanics-Mercantile Institute, San Francisco, Cal., which had been there for some thirty years, and another set in the San Francisco Art Association, presented in 1894 by Mr. Edward F. Searles, Methuen, Mass., were both destroyed by the disastrous earthquake and fire which visited that city April 18, 1906.

sets I think might all go into one case, tinned as usual and insured of course to the full amount of their value, as well as all others and to which I pray you to attend as if for your own self. It is impossible for me to go to London at present, and indeed I cannot exactly tell when I will, and I trust to you entirely for the seeing that all the volumes are fair and good and passed through *your own* inspection of them before they are packed. No volumes of Biographies must be put in the same boxes.

When you have disposed of your business, what will you do with what you may have on hand belonging to us? This requires an answer from you at once. You have a great number of volumes of Biographies, Pictures &c. &c., a regular list of which you ought to send me. I cannot yet say when the 5th vol. of Biographies will be finished, but will let you know as soon as I can. I received yesterday morning a letter from a gentleman who has procured a copy of the work through Mr. Eame the bookseller, he says that he has called upon you to say that he has missing *one plate* and begs to have a copy of the plate struck and remitted to Mr. Eame who will pay you whatever price the extra trouble on this account may amount to, but he does not say what plate it is, and I therefor suppose that you do? If so as he is the brother-in-law of Mr. Walker of Ravensfield Park, one of our *good* subscribers I would say do it for him! My wife begs of you to save all the loose prints which were returned to you by our son Victor, as well as any others whatever, perhaps among them you might find one to send Mr. Eame's subscriber?

On the 4th of this month the 'Great Western' [1] was nearly half way across the Atlantic!! Sir William Jardine [2] has published a

[1] "At a meeting of the Directors of the Great Western Railway, Oct., 1835, one of the party spoke of the enormous length, as it then appeared, of the proposed railway from London to Bristol, Mr. Brunel exclaimed, 'why not make it longer, and have a steamboat to go from Bristol to New York, and call it the 'Great Western'?'". The suggestion was evidently received with favor, for on July 19, 1837, the 'Great Western,' a steamship of 1340 tons and 236 feet in length, was launched and on April 8, 1838, she sailed on her maiden voyage, under command of Lieut. James Hosken, R. N., and reached New York on the 23rd inst. She was regarded as a nautical novelty and remained in commission for eighteen years.

[2] Sir William Jardine, born Edinburgh, Feb. 23, 1800; died Sandown, Isle of Wight, Nov. 21, 1874. Editor of two editions of Wilson's 'American Ornithology' 1832–34. Co-author, at the age of 25 years, with Prideaux John Selby, 'Illustrations of Ornithology,' 1830. Editor 'Naturalists Library,' 40 volumes, 1833–45, of which he wrote 14 volumes. He was keenly addicted to field sports and a master of the rod and the gun.

capital review of the work! What a strange world we do learn in! Be sure to let me know about the original drawings at Henry's, if he has finished them, where they are &c. &c. We all remain as usual with kind good wishes to you all,

Your friend

John J. Audubon.
6 Alva St.

[Superscribed]
Robert Havell Esq.
Engraver.
77 Oxford St.
London.

III.

WILLIAM HOME LIZARS.

William Home Lizars, the engraver of the first ten plates of the 'Birds of America,' was born about 1787 and died at Edinburgh March 30, 1859. His father was an artist, publisher and engraver of some merit, and several of his paintings are still in the National Gallery of Scotland. After his father's death in 1812, William carried on the business of engraving and copper-plate printing to support his mother and family.

He learned the art of engraving from his father to whom he was at first apprenticed, and later studied engraving at the Trustees Academy at Edinburgh. He executed numerous plates of Scottish scenery for various publications, and in 1822 made many anatomical plates for his brother John, who had acquired a reputation in that branch of study, but William made his mark as an engraver by his 'Scotch Wedding' and 'Reading the Will,' which were exhibited at the Royal Academy in 1812. Later a co-partnership was formed with his brother Daniel under the firm name of D. and W. H. Lizars, the business being confined to the engraving and printing, as well as the selling of books. I am under many obligations to Mr. A. L. Wilkinson, Windsor, Ontario, for copies of three letters now in his possession, which were written by Audubon to his grandfather, Daniel Lizars, brother and partner of the engraver. On the 27th of October, 1827, Audubon had engaged him to act

as his agent in a certain territory. These letters refer to the selling of the parts as issued and the collecting of accounts from subscribers, and also dwell in a measure on the difficulty which Audubon was experiencing in receiving response to his communications. In the 'Journals' we see that Audubon at that time was intimate with the families and accepted the hospitality of both brothers, and Mr. Wilkinson writes me that he well remembers his mother telling him that Audubon staid at his grandfather's house for weeks at a time. Sir William Jardine, so prominent in ornithology, married in 1820 Jane Home Lizars, sister of the engraver, for his first wife.

Audubon to Lizars.

Daniel Lizars, Esq.,
Book Seller
5 St. David Street — Edinburgh.

Liverpool, 6th Dec., 1827.

My dear Sir:

I have been here two weeks today and would have wrote to you long since; but on my arrival at Manchester I received a large parcel of Letters from my wife, saying that she had relinquished the Crossing of the Atlantic for this winter that has so annoyed me and lowered my spirits that I really have had no wish to write to any one. I hope you are well and all the family. I received a letter from Mr. Havell saying that the Numbers and Prints to complete your sets had been forwarded you. I hope you have supplied the Glasgow Museum and the Revd. Mr. Craig. I will not ask if you have any new names for me as I *might* be disappointed were I to expect an affirmative answer. Please write to me here care of Messrs. Rathbone & Brothers and let me know what success you have had in collecting; and if any money of mine is in your hands please forward me. I will go from this to Derby and afterwards to Bristol and will acquaint you with my success. I have nine more names since I left you. If you see Sir Wm. Jardine tell him that Charles Bonaparte has left the U. S. for ever and is gone to reside at Florence in Italy. Pray tell your brother W. H. that I will write to him the moment I reach London and wish him and

his good wife Well and Happy. I have wrote to Mr. Havell to send you a No. 5 which I wish you to send to Professor Wilson or indeed a whole set, to enable him to write the notice he has promised me for the 1st of next month.

With sincere good wishes
I am yours ever and sincerely
John J. Audubon.

Daniel Lizars, Esq.,
Book Seller
5 St. David Street — Edinburgh.

London, January 21st, 1828.

My dear Sir:

My surprise at not hearing from you is extreme, I hope you are not unwell or that any misfortunes have befallen your family or your own concerns. When I write to any one I expect an answer but when I write to a man whom I esteem and to whom I entrust a portion of my business, I feel miserable until I hear from him. This is the third time since my leaving Edinburgh that I have addressed you and I now do beg that you will answer me by return of Post and attend to my injunctions detailed in my former letters. I am extremely desirous to close my business for 1827 and cannot do so without receiving your % and the money due by my subscribers. Pray answer me and believe me in great haste Yours
Truly and Sincerely,
John J. Audubon.

95 Great Russel Street
Bedford Square.

Daniel Lizars, Esq.,
Book Seller
5 St. David Street — Edinburgh.

London, January 22nd, 1828.

My dear Sir:

I have just time to say that a fortunate demand of my work makes me request of you to forward me as soon as possible after receiving this all the sets of 5 numbers which you have on hand keeping only one full set to show.— The days are now so short and

so dark here that the coloring cannot go on fast enough for me.— If I mistake not you can send me six full sets of 5 numbers — and should you not have received back the sets intended for Dr. Meckleham who is no longer on my list of subscribers — send for it and keep that one on hand. You may have them all put in one of the Boxes sent you by Havell. My list of subscribers for your District amounts now to Eighteen, six that you will send and one copy for you to show make Twenty-five. I am extremely anxious to hear from you. This will be the 4th letter that I have wrote to you without a word of yours — in great haste

Yours Sincerely

John J. Audubon.

95 Great Russell Street,
Bedford Square.

SOME BIRDS OF CENTRAL ALABAMA.

A LIST OF THE BIRDS OBSERVED FROM MARCH 7 TO JUNE 9, IN PORTIONS OF COOSA, CLAY AND TALLEDEGA COUNTIES, ALABAMA

BY ARETAS A. SAUNDERS.

SINCE our knowledge of the birds of Alabama is incomplete, and since few local lists have ever been published from this State, it was thought that the following would be worthy of publication, although the observations cover but a small area of country and a short period of time.

The area covered, consisting roughly of about 100 square miles, lies principally in the northwestern part of Coosa County, but includes also the southwestern corner of Clay County, at Hollins. Besides this, three days, April 14–16, were spent at Sylacauga, in the southern part of Talladega County. Our camp, about which the greater part of the observations were made, was situated one mile east of Woodbine, a small portable lumbering town which is moved about following the supply of timber, but was then situated in Coosa County, four miles to the west of Weogufka. Though

most of my observations were made at Woodbine, the period from April 16–May 4, which was in the height of the migration, was spent at Hollins, in Clay County. I also stopped in Hollins on March 7, when on my way to Woodbine.

The country here, occupying the extreme southern end of the Appalachian Mountains, is very rough and hilly. The elevation is principally from 500–600 feet, but there are one or two long ridges, such as Mt. Weogufka, just south of Woodbine, which have an elevation of from 1000 to 1100 feet. There are many small streams and creeks between the hills, the largest of these in the vicinity of Woodbine being Weogufka and Finigotchki Creeks. These creeks are from 40 to 80 feet wide and in most places 4 or 5 feet in depth. The principal forest growth is long-leaf pine (*Pinus palustris*) which occupies all the hilltops and higher and drier places. This tree, which generally grows on the flat, sandy areas of the coastal plain, at this point in its range extends farther inland and grows on rougher country than at any other place. The creek valleys and swales are occupied by a mixed growth of hardwoods, of such species as cow oak, tulip, red gum, etc. There are no true swamp areas, and no open meadows. A few farms are scattered here and there, forming small open areas in the otherwise unbroken forest. Many of these are at present deserted and slowly growing back to their original wild state. In the vicinity of Hollins most of the pine timber has been cut and there is a much larger per cent. of open country.

I found this tract of country quite a favorable one for the study of birds. Though the species found were comparatively few, individuals were in large numbers. Water birds and birds of open meadows were almost entirely absent. Species which were resident, either winter or summer, were present in large numbers, but transients were comparatively few. There seemed to be no marked paths of migration and no great flights of birds were observed.

There are three marked types of country in which birds are found; these are (1) pine forests, (2) hardwood forests, and (3) cleared land, second growth, etc. The pine forests are made up principally of a pure stand of long-leaf pine. This forms a very open forest which in most places, on account of the forest fires, is free of undergrowth, but in some places has a thick growth of blackjack and other oaks. The common breeding birds in this type of

country are as follows: Bobwhite, Mourning Dove, Great Horned Owl, Hairy Woodpecker, Downy Woodpecker, Red-cockaded Woodpecker, Pileated Woodpecker, Flicker, Nighthawk, Chipping Sparrow, Bachman's Sparrow, Indigo Bunting, Summer Tanager, Yellow-throated Warbler, Black-throated Green Warbler, Pine Warbler, Prairie Warbler, White-breasted Nuthatch, Brown-headed Nuthatch, Tufted Titmouse, and Carolina Chickadee.

The hardwoods form a much denser forest than the pine. The trees are in many places very tall and large. In open places there is a thick undergrowth of vines, cane and various shrubs. The breeding birds in this kind of country are as follows: Red-tailed Hawk, Broad-winged Hawk, Yellow-billed Cuckoo, Downy Woodpecker, Red-bellied Woodpecker, Chuck-wills-widow, Ruby-throated Hummingbird, Wood Pewee, Green-crested Flycatcher, Florida Blue Jay, Cardinal, Scarlet Tanager, Red-eyed Vireo, Yellow-throated Vireo, Black and White Warbler, Parula Warbler, Cerulean Warbler, Louisiana Water Thrush, Kentucky Warbler, Hooded Warbler, Carolina Wren, Tufted Titmouse, Carolina Chickadee, Blue-gray Gnatcatcher, and Wood Thrush.

The cleared land consists of small scattered farms, with a few buildings, areas of ploughed fields, and second growth in deserted fields. In moist places along the streams there are thickets of blackberry and cane. The second growth is largely young pine and red gum. The ploughed fields have many of them been cleared by girdling the timber and leaving it standing. These fields, full of old dead timber, form good nesting sites for many woodpeckers and other hole-nesting birds. The species breeding in this type of country are as follows: Bobwhite, Sparrow Hawk, Downy Woodpecker, Red-headed Woodpecker, Red-bellied Woodpecker, Flicker, Chimney Swift, Kingbird, Crested Flycatcher, Orchard Oriole, Goldfinch, English Sparrow, Field Sparrow, Cardinal, Blue Grosbeak, Indigo Bunting, Purple Martin, White-eyed Vireo, Blue-winged Warbler, Prairie Warbler, Maryland Yellow-throat, Yellow-breasted Chat, Mockingbird, Catbird, Brown Thrasher, Bewick's Wren, Brown-headed Nuthatch, and Bluebird.

On my arrival in Alabama on March 7, migration appeared to be already under way. Probably some winter residents had already left as only two Fox Sparrows were seen, and Phœbes, which I had

expected to find commonly, were not seen at all. The migration kept up steadily and evenly throughout March and April without any noticeably large flights, and lasted till about the middle of May when a few late transients were still present, although the breeding birds had settled down and been nesting for some time.

Since my stay in any one county did not last through the entire migration, complete lists for the counties were not possible. The following birds were found in Coosa County, but not in Clay County: Woodcock, Cooper's Hawk, Barred Owl, Belted Kingfisher, Whip-poor-will, Olive-sided Flycatcher, Bobolink, Red-winged Blackbird, Meadowlark, Purple Finch, Vesper Sparrow, Swamp Sparrow, Fox Sparrow, Cedar Waxwing, Loggerhead Shrike, Mountain Solitary Vireo, Bachman's Warbler, Orange-crowned Warbler, Tennessee Warbler, Kirtland's Warbler, American Pipit, House Wren, Winter Wren, Ruby-crowned Kinglet, Olive-backed Thrush, Hermit Thrush. The following birds were found in Clay County, but not in Coosa County: Wood Duck, Spotted Sandpiper, Screech Owl, Rose-breasted Grosbeak, Nashville Warbler, Yellow Warbler, Black-throated Blue Warbler, Chestnut-sided Warbler, Grinnell's Water Thrush, Wilson's Warbler, American Redstart, Short-billed Marsh Wren, Brown Creeper, Gray-cheeked Thrush. With the exception of the Warbling Vireo, which was found only in Talladega County, the remaining species were found in both Clay and Coosa Counties.

The following are some of the most interesting records in this list. The occurrence of the Florida Blue Jay in place of the more northern form appears to be a northern extension of the range of this bird. As the birds differed from the common Blue Jay not only in size and plumage but also in their notes I have no doubt that all, or practically all, of the Jays here were of this subspecies. The occurrence of the Nashville Warbler seems to be the first record of this species in the State of Alabama, as Prof. W. W. Cooke, in his report on the Migration and Distribution of Warblers, published in 1905, states that it had not been recorded from the State. The occurrence, in considerable numbers, of the Blue-winged and Black-throated Green Warblers as breeding birds, appears to be a southward extension of the breeding ranges, particularly of the latter species.

I am much indebted to Dr. Louis B. Bishop for the identification of subspecies, examination of the manuscript of this list, and for much encouragement and many helpful suggestions. I am also indebted to my classmates, who were with me in Alabama, and who helped and encouraged me in my work whenever possible.

In the following list those species of which specimens were taken are marked with an asterisk (*).

1. **Aix sponsa**. WOOD DUCK.— On April 18 a male bird was flushed from a small pool of rain-water at Hollins.

*2. **Butorides virescens**. GREEN HERON.— First noted at Woodbine on April 5. Seen occasionally both there and at Hollins until May 6.

3. **Philohela minor**. AMERICAN WOODCOCK.— One seen on Weogufka Creek, Coosa Co., on May 28.

4. **Actitis macularia**. SPOTTED SANDPIPER.— One seen along a small creek at Hollins on April 18.

*5. **Colinus virginianus**. BOBWHITE.— Very abundant at both Woodbine and Hollins. A nest containing 17 eggs was found on Mt. Weogufka on May 22.

6. **Meleagris gallopavo silvestris**. WILD TURKEY.— A pair of these birds were seen at Woodbine on April 11 and others were heard at Hollins April 21.

7. **Zenaidura macroura**. MOURNING DOVE.— Very abundant at Woodbine but less common at Hollins. Young birds, out of the nest, were seen as early as May 10.

8. **Cathartes aura**. TURKEY VULTURE.— Very common.

9. **Catharista urubu**. BLACK VULTURE.— Less common than the last species. Locally common in the steep, rocky country on the south side of Mt. Weogufka.

10. **Accipiter cooperi**. COOPER'S HAWK.— One female seen at Woodbine on March 15.

11. **Buteo borealis**. RED-TAILED HAWK.— Seen quite commonly and evidently breeding.

12. **Buteo platypterus**. BROAD-WINGED HAWK.— First noted on March 25 and soon became abundant. I was told of a nest of this species found on Finigotchki Creek in the latter part of May but did not see it myself.

13. **Falco sparverius**. SPARROW HAWK.— Quite abundant. Young birds, out of the nest, were seen on June 3.

14. **Syrnium varium**. BARRED OWL.— One seen on March 27.

15. **Megascops asio**. SCREECH OWL.— One heard at Hollins on April 27.

16. **Bubo virginianus**. GREAT HORNED OWL.— Quite common. A tree, cut down by the lumbermen on March 12, contained a large stick nest with one half-grown owl of this species. An attempt was made to keep this bird alive but it died in about a week.

*17. **Coccyzus americanus.** YELLOW-BILLED CUCKOO.— Quite common. First seen at Hollins on April 26.

18. **Ceryle alcyon.** BELTED KINGFISHER.— Seen but twice, March 15 and April 9 on Finigotchki Creek.

19. **Dryobates villosus audubonii.** SOUTHERN HAIRY WOODPECKER.— Seen occasionally but least common of the eight species of Woodpeckers found here.

20. **Dryobates pubescens.** SOUTHERN DOWNY WOODPECKER.— Very common.

21. **Dryobates borealis.** RED-COCKADED WOODPECKER.— Abundant in the pine woods. A brood of young, out of the nest, were seen on May 17.

22. **Sphyrapicus varius.** YELLOW-BELLIED SAPSUCKER.— Very abundant till March 24, last seen March 29.

23. **Ceophlœus pileatus.** PILEATED WOODPECKER.— Quite common at Woodbine, only one seen at Hollins.

*24. **Melanerpes erythrocephalus.** RED-HEADED WOODPECKER.— First seen on March 13. Not common till about April 1. The farmers, who call this species by the not inappropriate name of "Shirt-tail," shoot all woodpeckers, but particularly this and the next species, at every opportunity. They claim that these birds ruin their corn crop in the fall by ripping open the ripened ears.

*25. **Centurus carolinus.** RED-BELLIED WOODPECKER.— Abundant. A female bird was seen feeding young in a hole in a stump at Hollins, April 27.

26. **Colaptes auratus.** FLICKER.

27. **Colaptes auratus luteus.** NORTHERN FLICKER.— Flickers were abundant as winter residents but less common as summer residents, the change taking place about April 5. None were taken but it is thought that the wintering birds were of the northern form and the summer birds the southern.

28. **Antrostomus carolinensis.** CHUCK-WILLS-WIDOW.— First heard on April 9. Became common after this. A set of two eggs was found by Mr. J. A. Fitzwater on May 24.

29. **Antrostomus vociferus.** WHIP-POOR-WILL.— A bird seen at Woodbine, March 30. Others were heard in this vicinity April 4 to 7.

30. **Chordeiles virginianus.** NIGHTHAWK.— First seen April 21. Became very abundant.

31. **Chætura pelagica.** CHIMNEY SWIFT.— First seen on March 30. Very abundant.

32. **Trochilus colubris.** RUBY-THROATED HUMMINGBIRD.— First seen at Woodbine on March 29. Not seen again until April 21 at Hollins. Became abundant soon after this and a nest was found on May 9.

33. **Tyrannus tyrannus.** KINGBIRD.— First seen at Woodbine on April 9. More common at Hollins than at Woodbine.

34. **Myiarchus crinitus.** CRESTED FLYCATCHER.— Common. The first one was seen on March 30.

35. **Nuttallornis borealis.** OLIVE-SIDED FLYCATCHER.— A single individual was seen at Woodbine on May 9.

36. **Contopus virens**. WOOD PEWEE.— First seen on April 6. Became common after April 10.

*37. **Empidonax virescens**. GREEN-CRESTED FLYCATCHER.— First seen on April 13. A very common bird and characteristic of the hardwood swales. A nest containing nearly full grown young was found in a branch of a water oak overhanging Weogufka Creek.

*38. **Cyanocitta cristata florincola**. FLORIDA BLUE JAY.— Dr. Bishop identified my specimens as this subspecies. Quite common. A pair were seen nest-building on March 29.

39. **Corvus brachyrhynchos**. AMERICAN CROW.— Not very common.

40. **Dolichonyx oryzivorus**. BOBOLINK. These birds were seen about Woodbine from May 4 to 10 but were not common.

41. **Agelaius phœniceus**. RED-WINGED BLACKBIRD.— A flock of about forty individuals, composed entirely of females, was seen feeding on the opening red maple buds along Weogufka Creek on March 19.

42. **Sturnella magna argutula**. FLORIDA MEADOWLARK.— Seen commonly on cut-over and burned-over lands, where they looked entirely out of place, from March 17 to April 8. None were taken but the birds were assumed to belong to this subspecies.

43. **Icteris spurius**. ORCHARD ORIOLE.— First seen on April 12. Quite common at Hollins but less so at Woodbine. Confined to clearings and the vicinity of buildings.

44. **Icterus galbula**. BALTIMORE ORIOLE.— Rare. Seen at Hollins May 1 and 3, and at Woodbine May 10.

45. **Carpodacus purpureus**. PURPLE FINCH. Not common. Seen at Woodbine from March 15 to 29.

46. **Astragalinus tristis**. AMERICAN GOLDFINCH.— Very abundant.

*47. **Passer domesticus**. ENGLISH SPARROW.— Abundant wherever there are buildings.

48. **Pœcetes gramineus**. VESPER SPARROW.— Seen at Woodbine on March 15 and 19, in flocks of Field and Chipping Sparrows.

49. **Zonotrichia albicollis**. WHITE-THROATED SPARROW.— Abundant till April 25. A straggler seen April 29.

50. **Spizella socialis**. CHIPPING SPARROW.— Abundant, both as a winter and summer resident. A characteristic bird of the pine woods, where it evidently nested in the pine trees.

51. **Spizella pusilla**. FIELD SPARROW.— Quite common as a winter resident. Less so as a summer resident. Nests containing eggs were found at Hollins on April 24 and 30. A nest containing half grown young was found at Woodbine on May 10.

52. **Junco hyemalis**. SLATE-COLORED JUNCO.— Common from the time of my arrival until March 30.

*53. **Peucæa æstivalis bachmanii**. BACHMAN'S SPARROW.— First seen on March 8 but was not common until March 15. On May 9 two nests were found, one containing eggs and the other newly hatched young. A young bird, out of the nest, was seen on May 19.

54. **Melospiza cinerea melodia**. SONG SPARROW.— Abundant from the time of my arrival until March 19.

55. **Melospiza georgiana**. SWAMP SPARROW.— Seen near Weogufka, Coosa Co., on April 14 and at Syllacauga, Talladega Co., on April 16.

56. **Passerella iliaca**. FOX SPARROW.— A pair of these birds were seen on Weogufka Creek, March 11. I had expected to find this species an abundant winter resident, but believe that the main body had gone north before my arrival.

57. **Pipilo erythrophthalmus**. TOWHEE.— Abundant until the middle of April, and a few seen until May 1, at Hollins. I believe that a few bred here though I saw none later than this. One of our party, Mr. J. A. Fitzwater, saw one at Hollins on June 6.

58. **Cardinalis cardinalis**. CARDINAL.— Abundant. A nest containing two eggs was found at Woodbine on April 12. A third egg was laid the following day. A nest containing three newly hatched young was found at Hollins on April 28 and a young bird, out of the nest, on May 1. This last bird had caught its foot on a blackberry briar and was struggling to release itself. I released it and left it sitting on a stump, apparently none the worse for its escapade.

59. **Zamelodia ludoviciana**. ROSE-BREASTED GROSBEAK.— Not common. Seen from April 25 to May 4.

*60. **Guiraca cærulea**. BLUE GROSBEAK. — First seen at Hollins April 24. More common at Hollins than at Woodbine but not abundant at either place. These birds seemed to prefer ploughed fields where patches of briars and bushes were left between the furrows.

*61. **Cyanospiza cyanea**. INDIGO BUNTING.— Common. First seen on April 14. Seemed partial to open pine woods where there was a thick, bushy undergrowth.

62. **Piranga erythromelas**. SCARLET TANAGER.— First seen on April 2. Quite common but not so abundant as the next species. Partial to hardwood bottoms.

*63. **Piranga rubra**. SUMMER TANAGER.— Very common. First seen on April 9. Partial to pine woods.

64. **Progne subis**. PURPLE MARTIN.— Quite common. Nearly every farmhouse has a colony of these birds nesting in hollow gourds swung from the top of a tall pole. The farmers told me that they kept the hawks away. I first noted this species on March 17.

65. **Hirundo erythrogaster**. BARN SWALLOW.— Common at Syllacauga, Talladega, Co., April 14–16. Seen at Hollins on May 3, and at Woodbine May 9–10. On these last two dates the birds were all seen during the early morning, high in the air and flying northward. They were apparently migrating though it seemed rather late for migration of this species.

66. **Stelgidopteryx serripennis**. ROUGH-WINGED SWALLOW.— Seen at Hollins April 17 and 19, and on Weogufka Creek, Coosa Co., on May 11 and 29. They were probably breeding along the steep banks of Weogufka Creek.

67. **Ampelis cedrorum**. CEDAR WAXWING.— Not common. Small flocks were seen at Woodbine May 7–17.

*68. **Lanius ludovicianus**. LOGGERHEAD SHRIKE.— On May 4, while walking from Hollins to Woodbine, I saw several pairs of these birds in the vicinity of Stewartsville, Coosa Co. One pair were feeding young in a nest situated in a clump of grape vines about 40 feet up. This is the only time I met this species.

69. **Vireo olivaceus**. RED-EYED VIREO.— Quite common. First seen March 31. A nest containing one fresh egg was found on Weogufka Creek on May 21.

70. **Vireo gilvus**. WARBLING VIREO.— One heard singing at Sylacauga, Talladega Co., on April 16.

71. **Vireo flavifrons**. YELLOW-THROATED VIREO. — Not common. First seen March 27. Evidently breeding, as individuals were seen as late as June 3.

*72. **Vireo solitarius alticola**. MOUNTAIN SOLITARY VIREO. — First noted March 14. Common from March 21–April 12. An individual taken March 14, was referred to this subspecies by Dr. Bishop.

73. **Vireo noveboracensis**. WHITE-EYED VIREO.— Abundant. First seen March 17. A nest containing one fresh egg was found on Weogufka Creek on May 26. This may have been a second brood nest as I believed from the actions of the birds that they were breeding much earlier than this.

74. **Mniotilta varia**. BLACK-AND-WHITE WARBLER.— First seen March 14. Quite common and evidently breeding.

*75. **Helmitherus vermivorus**. WORMEATING WARBLER.— Found at Hollins April 21 and 28, at Woodbine May 6.

*76. **Helminthophila bachmanii**. BACHMAN'S WARBLER.— A male bird was taken at Woodbine on the morning of March 20. Twice after that I thought I heard the song of this species but could not be certain of it.

77. **Helminthophila pinus**. BLUE-WINGED WARBLER.— Quite common. First seen on March 27. Although this warbler is not recorded as breeding in this vicinity, I found it abundant throughout the breeding season.

*78. **Helminthophila chrysoptera**. GOLDEN-WINGED WARBLER.— This bird was quite common for a transient and was observed from April 21 to May 7.

*79. **Helminthophila rubricapilla**. NASHVILLE WARBLER.— A female of this species was taken at Hollins on April 18. This appears to be the first record for this species in the State of Alabama.

80. **Helminthophila celata**. ORANGE-CROWNED WARBLER.— On March 27, at Woodbine, I saw closely a small warbler which I felt certain was this species, though I had had no previous acquaintance with it.

81. **Helminthophila peregrina**. TENNESSEE WARBLER.— One seen at Woodbine May 9.

82. **Compsothlypis americana**. PARULA WARBLER.— First noted March 20. Became common about March 26. Seen throughout my stay and evidently breeding.

83. **Dendroica æstiva**. YELLOW WARBLER.— Abundant at Sylacauga on April 18. Seen at Hollins April 25.

84. **Dendroica cærulescens**. BLACK-THROATED BLUE WARBLER.— Seen at Hollins April 19 and May 3.

85. **Dendroica coronata**. MYRTLE WARBLER.— Abundant from April 3 to May 2.

*86. **Dendroica cerulea**. CERULEAN WARBLER.— Locally common at Woodbine, in the tops of tall hardwoods on Finigotchki Creek, where it was first noted on April 10. It was evidently breeding here as it was seen as late as June 3. Seen but once at Hollins, April 21.

87. **Dendroica pensylvanica**. CHESTNUT-SIDED WARBLER.— Seen at Hollins April 25 to May 3. Not common.

88. **Dendroica striata**. BLACK-POLL WARBLER.— Not common. First seen at Hollins, April 28 and last at Woodbine, May 14.

89. **Dendroica blackburniæ**. BLACKBURNIAN WARBLER.— Not common. Noted at intervals from April 4 to May 10, both at Woodbine and Hollins.

*90. **Dendroica dominica**. YELLOW-THROATED WARBLER.— First noted on March 16. An abundant breeding bird, characteristic of the pine woods.

91. **Dendroica virens**. BLACK-THROATED GREEN WARBLER.— First noted March 17 at Woodbine. Quite common in the higher hills, in the pine woods. I was much surprised to find that a number of these birds remained on Mt. Weogufka throughout the breeding season. They were evidently breeding and were last seen there June 9.

92. **Dendroica kirtlandi**. KIRTLAND'S WARBLER.— I met with an individual of this species at Woodbine, May 10, a Sunday afternoon when I unfortunately had no gun. I watched the bird closely for some ten or fifteen minutes. Its actions resembled those of the Pine Warbler but its song was rather like that of the Black-throated Green. It consisted of six notes. The first and fourth were long while the others were much shorter and in pairs. The first, and the last two, notes were pitched high, while the three middle notes were about a fifth lower.

93. **Dendroica vigorsii**. PINE WARBLER.— Very common, both as a winter and summer resident, breeding commonly in the pine woods.

*94. **Dendroica palmarum**. PALM WARBLER.— Fairly common from April 3 to April 27. It seemed to prefer ploughed fields along the edges of woods.

95. **Dendroica palmarum hypochrysea**. YELLOW PALM WARBLER.— A few individuals noted at Woodbine March 16 and 17. Another individual thought to be of this subspecies was seen at Hollins on April 17.

96. **Dendroica discolor**. PRAIRIE WARBLER.— First noted at Woodbine March 26. Abundant, inhabiting thick, bushy undergrowth in the open pine woods. A nest with four eggs was found at Woodbine, May 15.

*97. **Seiurus noveboracensis notabilis**. GRINNELL'S WATER THRUSH. — This species was noted at Sylacauga on April 16 and at Hollins April 22 to May 3. A bird taken at Hollins April 25 was identified as this subspecies by Dr. Bishop.

98. **Seiurus motacilla**. LOUISIANA WATER THRUSH.— First seen on March 9. Abundant. On every small creek one or more pairs of these birds were breeding.

*99. **Geothlypis formosa**. KENTUCKY WARBLER.— First seen on April 7. A common bird in the hardwood swales. A nest containing five eggs was found on May 19. A young bird, out of the nest but unable to fly, was seen on June 1. Another nest containing eggs, perhaps a second brood, was found on June 9.

*100. **Geothlypis trichas**. MARYLAND YELLOWTHROAT.— This species was first noted on March 16 and soon became common. A young bird, just out of the nest, was seen on May 20. A breeding bird, taken at Hollins on April 24, was identified as this form by Dr. Bishop.

101. **Icteria virens**. YELLOW-BREASTED CHAT.— First seen on April 11. Common at Hollins; less so at Woodbine.

*102. **Wilsonia mitrata**. HOODED WARBLER.— First seen April 4. Very abundant in the hardwood bottoms.

103. **Wilsonia pusilla**. WILSON'S WARBLER. — A male bird was seen at Hollins May 2.

104. **Wilsonia canadensis**. CANADIAN WARBLER.— Seen at Hollins May 2 and 3 and at Woodbine, May 9 and 14.

105. **Setophaga ruticilla**. AMERICAN REDSTART.— Seen at Hollins April 24–May 3.

106. **Anthus pensilvanicus**. AMERICAN PIPIT.— A single, lonely looking individual was seen on ploughed fields near Woodbine on March 12.

107. **Mimus polyglottos**. MOCKINGBIRD.— Common at Hollins but rather scarce at Woodbine.

108. **Galeoscoptes carolinensis**. CATBIRD.— Arrived April 12. More common at Hollins than at Woodbine.

109. **Toxostoma rufum**. BROWN THRASHER.— Seen throughout my stay but not common. I watched one feeding its young at Hollins April 27.

110. **Thryothorus ludovicianus**. CAROLINA WREN.— Very abundant. Broods of young were seen commonly on and after May 13. A second brood nest was found on May 19, containing two fresh eggs. Three more eggs were laid and the young were hatched and nearly full grown when we broke up camp on June 9.

*111. **Thryomanes bewickii**. BEWICK'S WREN.— First seen on March 21. Not common. On April 6 a pair were seen building a nest in a wood pile back of the turpentine still at Woodbine. At Hollins a few pairs nested among the piles of lumber in the mill yard, where I saw a brood of young on May 2.

112. **Troglodytes aëdon**. HOUSE WREN.— Seen at Woodbine April 1–12. Not common.

113. **Olbiorchilus hiemalis**. WINTER WREN.— Seen occasionally at Woodbine from March 8 to 26.

114. **Cistothorus stellaris**— SHORT-BILLED MARSH WREN.— On May

3 I was much surprised to find a male bird of this species, along a little alder-lined creek at Hollins.

115. **Certhia familiaris americana**. BROWN CREEPER.— One individual was seen at Hollins on March 7, the day of my arrival.

116. **Sitta carolinensis**. WHITE-BREASTED NUTHATCH.— Quite common. Both this and the next species were called "Sapsucker" by the natives.

*117. **Sitta pusilla**. BROWN-HEADED NUTHATCH.— Common. The first nest was found partly constructed on March 21. Nests were found commonly from then until about May 1, by which time most of the young had flown.

*118. **Bæolophus bicolor**. TUFTED TITMOUSE.— Very abundant. Birds were seen with nesting material on April 9 but no nests were found until May 8, when the young were nearly full grown. The young were very noisy and from then until May 15 a number of nests were easily found.

*119. **Parus carolinensis**. CAROLINA CHICKADEE.— Quite common

120. **Regulus satrapa**. GOLDEN-CROWNED KINGLET.— Abundant from my arrival until March 25.

121. **Regulus calendula**. RUBY-CROWNED KINGLET.— First seen March 9. Not common until March 15. Common from then to April 14. Stragglers seen up till April 25.

*122. **Polioptila cærulea**. BLUE-GRAY GNATCATCHER.— First seen on March 15. Very abundant. From March 29, when the first birds began building, until May 15, when the last young flew, many nests were found, both at Woodbine and Hollins. Both young and old birds were noisy and attracted attention to their nests.

123. **Hylocichla mustelina**. WOOD THRUSH.— First seen on March 25. Abundant. A nest containing two fresh eggs was found at Hollins April 28. A young bird, out of the nest, was seen on Weogufka Creek, May 26.

124. **Hylocichla fuscescens**. WILSON'S THRUSH.— A pair were seen on March 16. Not seen again till March 24. Seen occasionally from then until April 18.

*125. **Hylocichla ustulata swainsonii**. OLIVE-BACKED THRUSH.— Birds belonging to either this or the next species were seen from April 11 to 25. One taken April 11, proved to be of this species.

*126. **Hylocichla aliciæ**. GRAY-CHEEKED THRUSH.— See above species. A bird taken April 24 was of this species.

127. **Hylocichla guttata pallasii**. HERMIT THRUSH.— Seen from March 20 to April 13. To my surprise these thrushes sang commonly throughout their stay, during the early morning hours.

128. **Merula migratoria**. AMERICAN ROBIN.— Common from the time of my arrival until March 18.

129. **Sialia sialis**. BLUEBIRD.— Abundant. The first nest was found April 2, containing five eggs. Broods of young were seen commonly from April 30 to May 4. A second or third brood nest was found on June 5, with four fresh eggs.

BIRDS OF THE BELLINGHAM BAY REGION.

BY J. M. EDSON.

BELLINGHAM BAY is situated in the northwest corner of the United States, or to be more exact, in one of the northwest corners; for our country here has a sort of double corner. This results from the reëntrant course of the international boundary, which leaves the 49th parallel at the Gulf of Georgia and turns southerly to the Strait of Juan de Fuca, thence westerly to the Pacific. It is the more northerly of these corners that is here considered. The bay is sixteen miles in length with an extreme width of about eight miles, its greatest dimension being from north to south. The Nooksack River debouches into the bay at its northern extremity. About the river mouth there is a delta of marsh lands several square miles in area. These are populated throughout the year and particularly during migrations by numerous species of birds. The variety, changing with the season, includes waterfowl, wading birds, Chinese Pheasants, Marsh Hawks, Magpies, Red-wing Blackbirds, Kingfishers, Yellow-throats, Tule Wrens and other species.

On the eastern shore of the bay, about five miles from its northern end, is the city of Bellingham. From this point a fertile, forest-covered plain extends northward about sixty miles. A line drawn northeast from Bellingham would mark approximately its eastern limit. On the west this plain is bounded by Bellingham Bay and the Gulf of Georgia. It is traversed from east to west by both the Nooksack and Fraser Rivers, and the international boundary crosses it between these streams, at a distance of eighteen miles from Bellingham. Southward from this city the bay is bounded by a precipitous mountain wall for about seven miles, its southern end indenting the rich Skagit River bottom. Its western limit is marked by the islands of the San Juan Archipelago and the Lummi Peninsula.

The mountain wall referred to is the terminus of a spur of the Cascades, which here extends westward to tidewater. Some of the peaks of this spur rise to a height of 3000 feet. This is the only interruption in the wide belt of alluvial land skirting the salt water from the Snohomish River on the south, to and beyond the

Fraser on the north, a distance of about 125 miles. Nature has, however, kindly crossed this obstruction with three deep valleys which connect the low lands of the south with those of the north. In the more westerly of these valleys lies Lake Samish; in the next, Lake Whatcom; in the third valley is the South Fork of the Nooksack River, flowing northward and about thirteen miles distant from Bellingham.

East of this valley lies the main body of the Cascades in a confused tangle of rugged ranges trending to nearly every point of the compass. Many of these have an elevation of 6000 feet and more, and their crests are white with perpetual snow. Some of their peaks reach an altitude of 8000 and 9000 feet, and as a centerpiece for this particular section of the Cascades stands Mt. Baker, whose volcanic cone projects skyward nearly 11,000 feet. This mountain is thirty miles due east from Bellingham.

West of Bellingham Bay lie the San Juan Islands. A number of them are of considerable size, the larger ones having an area of two or three townships, while numerous others range downward to mere rocks. Some of these islands are rugged and mountainous, one reaching a height of 2400 feet. The group is interlaced by a network of tide-swept straits and channels, connecting the Gulf of Georgia with the Strait of Juan de Fuca. These passages vary in width from several miles to mere "holes in the wall." The waters abound in marine plants and the lower forms of animal life. This is the migration route of immense schools of salmon and lesser fishes. Whales, porpoises, sea lions and seals are common. As may be supposed, these are the haunts of resident waterfowl of many species in summer, and throngs of migrants at other seasons.

A dense, dark forest originally covered this entire region, and still largely preponderates over the clearings. The timber is chiefly fir and cedar, the trees reaching a height of 200 or 300 feet. There is also a sprinkling of spruce and other conifers, while hemlock and larch are found in the mountains. Alder is the most abundant deciduous species. It grows rapidly and when not restrained will quickly reforest clearings and slashings. Cottonwood and maple are sparcely distributed in the valleys and low lands. The undergrowth comprises vine-maple, willow, crab-apple, wild rose, devil's

club, syringa, spiræa, arrow-wood, elder, thimbleberry, salmonberry, dewberry, red and black huckleberry, service-berry, salal, currant, gooseberry and Oregon grape. Post-oak and madrona are found on the islands. Ferns and mosses of several species grow in profusion.

Bird life is most abundant among the deciduous growth and open lands. Many species are increasing in abundance with the enlargement of the cleared area, as for instance the Western House Wren, Robin, Yellow Warbler, Chipping Sparrow and Meadowlark. The gloomy depths of the evergreen forest are but sparingly inhabited by birds. Among the mountains the most characteristic species is perhaps the Varied Thrush, while the Water Ousel occurs along the streams. The chatter of a Winter Wren, the tapping of a Woodpecker or the cries of the Oregon Jay are occasionally heard. Ruffed Grouse, Kinglets, Chickadees and Juncos appear now and then, while American Crossbills and Western Evening Grosbeaks are less frequent. The Raven, California Pygmy Owl and Golden Eagle are seen at times. As the timber line is approached the Sabbath-like stillness is often broken by the vigorous booming of the Sooty Grouse. The only birds found above timber line are Hummingbirds, which haunt the flowery region intervening between the timber and the snow, and occasional Horned Larks, Sandwich or Savanna Sparrows, Solitaires, Leucostictes and Ptarmigans.

An idea of the climatic conditions of the region may be gained from statistics of the United States weather bureau. Observations at Bellingham for a period of years show a mean annual precipitation of 31.5 inches; snow, 9 inches; average maximum temperature, 84 degrees; minimum, 12 degrees above zero; number of clear days, 133; partly clear, 126; cloudy, 105; days on which rain fell, 111; prevailing wind, southwest, south and southeast. Except on the mountains, snow seldom remains more than a few days or even hours, though severe weather is sometimes unaccompanied by snow. Back from the salt water the maximum temperature is several degrees higher. On the mountains conditions are of a more boreal character and the precipitation and particularly the snowfall is much heavier, with the temperature colder. The climate is humid, as the limited range of temperature would suggest, though there is a seeming contradiction in the remarkably light

rainfall, which is much less than at most other points in western Washington, and even less than in the eastern States. That of New York City, for example, is about 40 per cent. greater than the rainfall at Bellingham. This phenomenal deficiency of precipitation at this point is accounted for by the windward position of the Olympic Mountains.

My observations of the birds of this region have extended over a period of eighteen years, though not as systematic and thorough as might be desired. Bellingham and its immediate environs, including the adjacent water-front, have been my principal field of work. The Nooksack Marsh has often been visited, and the islands west of the bay a number of times. Excursions have occasionally been made to various points in the surrounding country. There have been a number of expeditions into the mountains, where the deep cañons and highest peaks alike were visited. Some of these trips have extended as far as fifty miles east of Bellingham. It will be noticed that this territory lies almost wholly within the Transition life zone, the higher mountains only coming within the Boreal.

The following list refers to 212 species and subspecies, besides 17 others which I have added hypothetically. Except in the case of those last mentioned, identification has been made from specimens in hand in nearly all cases. In the field it is usually difficult to distinguish between subspecies, hence the relative abundance of such is in many instances hard to determine.

1. **Æchmophorus occidentalis**. WESTERN GREBE.— An abundant winter resident, also occasionally seen in summer.

2. **Colymbus holbœlli**. HOLBŒLL GREBE.— Common in winter and sometimes appearing in summer.

3. **Colymbus auritus**. HORNED GREBE.— Common in winter and occurs sparingly in summer.

4. **Podilymbus podiceps**. PIED-BILLED GREBE.— I have seen it a number of times in spring and autumn, also in July, I think.

5. **Gavia imber**. LOON.— Frequently seen throughout the year. Breeds about lakes.

6. **Gavia arctica**. BLACK-THROATED LOON.— On more than one occasion I have seen what I am quite confident was this species in spring plumage.

7. **Gavia pacifica**. PACIFIC LOON.— Frequent in winter, I believe, though its plumage is hard to distinguish from that of *arctica* or *lumme* at that season.

8. **Gavia lumme**. RED-THROATED LOON.— Quite common in winter.

9. **Lunda cirrhata**. TUFTED PUFFIN.— Fairly common as a breeding summer resident among the islands of the San Juan Archipelago.

10. **Cerorhincha monocerata**. RHINOCEROS AUKLET.— Mounted specimens in Bellingham were taken at Smith's Island, Strait of Fuca.

11. **Brachyramphus marmoratus**. MARBLED MURRELET.— Abundant in winter and fairly common in summer, though apparently it does not breed hereabout.

12. **Cepphus columba**. PIGEON GUILLEMOT.— It breeds abundantly among the islands and is common throughout the year.

13. **Uria troile californica**. CALIFORNIA MURRE.— Frequently seen in winter.

14. **Stercorarius parasiticus**. PARASITIC JAEGER.— Occasionally seen during migrations.

15. **Rissa tridactyla pollicaris**. PACIFIC KITTIWAKE.— Occurs occasionally at Bellingham Bay.

16. **Larus glaucescens**. GLAUCOUS-WINGED GULL.— Abundant about the harbors in winter, retiring to the islands in summer, where it breeds in considerable numbers. It is the most characteristic gull of this region.

17. **Larus occidentalis**. WESTERN GULL.— Met with occasionally in winter.

18. **Larus argentatus**. HERRING GULL.— Frequently seen throughou the winter.

19. **Larus californicus**. CALIFORNIA GULL.— Occasionally met with at all seasons.

20. **Larus delawarensis**. RING-BILLED GULL.— Occasional in winter.

21. **Larus brachyrhynchus**. SHORT-BILLED GULL.— Abundant resident of the harbors in winter.

22. **Larus heermanni**. HEERMANN GULL.— Considerable flocks of nonbreeding birds of this species spend the summer among the islands, and occasional birds are seen at all other seasons.

23. **Larus philadelphia**. BONAPARTE GULL.— Of frequent occurrence during migrations, often quite numerous in August.

24. **Sterna hirundo**. COMMON TERN.— One specimen in my possession was taken at the mouth of the Nooksack River, from a flock, Sept. 2, 1904. I have seen terns on three or four occasions.

25. **Hydrochelidon nigra surinamensis**. AMERICAN BLACK TERN.— One was taken by me Aug. 26, 1899, at the Nooksack Marsh.

26. **Diomedea albatrus**. SHORT-TAILED ALBATROSS.— One specimen in the Bellingham Normal School collection was taken at Cottonwood Island.

27. **Oceanodroma kaedingi**. KAEDING PETREL.— The same collection contains one specimen of this species, believed to have been taken on Bellingham Bay.

28. **Phalacrocorax dilophus cincinatus**. WHITE-CRESTED CORMORANT.— Occasional in winter.

29. **Phalacrocorax penicillatus**. BRANDT CORMORANT.— Common at

Bellingham Bay and among the neighboring islands throughout the year. Apparently it does not breed in this vicinity.

30. **Phalacrocorax pelagicus resplendens**. BAIRD CORMORANT.— A common summer resident among the islands, where there are numerous nesting colonies.

31. **Pelecanus erythrorhynchus**. AMERICAN WHITE PELICAN.— One specimen killed by an Indian at Sandy Point is in the Bellingham Normal School collection.

32. **Merganser americanus**. AMERICAN MERGANSER.— Occasional in winter.

33. **Merganser serrator**. RED-BREASTED MERGANSER.— Frequent in winter.

34. **Lophodytes cucullatus**. HOODED MERGANSER.— Frequently met with on lakes and streams at all seasons. Breeds.

35. **Anas boschas**. MALLARD.— Common as a resident, but more so during migrations. Breeds.

36. **Chaulelasmus streperus**. GADWALL.— I have seen but one specimen, which was taken in the Nooksack Marsh Nov. 7, 1902.

37. **Mareca americana**. BALDPATE.— Common except in summer.

38. **Nettion carolinensis**. GREEN-WINGED TEAL.— Abundant during the greater part of the year, a few remaining during summer, doubtless, breeding.

39. **Querquedula discors**. BLUE-WINGED TEAL.— Occurs occasionally in the Nooksack Marsh. August records suggest its possible breeding there.

40. **Spatula clypeata**. SHOVELER.— Occasional at all seasons. Probably breeds.

41. **Dafila acuta**. PINTAIL.— Common winter resident.

42. **Aix sponsa**. WOOD DUCK.— An occasional resident.

43. **Aythya americana**. REDHEAD.— Rare winter visitor.

44. **Aythya vallisneria**. CANVAS-BACK.— Moderately common about the southern end of Bellingham Bay in winter, and occasionally seen at other points.

45. **Aythya marila**. BLUE-BILL.— Common throughout the winter, particularly in the harbors.

46. **Clangula clangula americana**. AMERICAN GOLDEN-EYE. Quite common in winter on salt water.

47. **Clangula islandica**. BARROW GOLDEN-EYE.— A specimen in the Normal School collection was taken in this vicinity.

48. **Charitonetta albeola**. BUFFLE-HEAD.— Common throughout the winter. Numerous about the wharves of the city.

49. **Harelda hyemalis**. OLD-SQUAW.— Common on Bellingham Bay except in summer.

50. **Histrionicus histrionicus**. HARLEQUIN DUCK.— Non-breeding birds of this species are found among the islands in summer, sometimes in considerable flocks. They doubtless breed in small numbers along the larger streams. They are occasionally seen in winter.

51. **Oidemia americana**. AMERICAN SCOTER.— Occasional in winter. I have also seen flocks undoubtedly of this species among the islands in summer.

52. **Oidemia deglandi**. WHITE-WINGED SCOTER.— Resident throughout the year and common everywhere on salt water, particularly in winter. I have no evidence of its breeding.

53. **Oidemia perspicillata**. SURF SCOTER.— Resident throughout the year, being very adundant in winter. It apparently does not breed.

54. **Chen hyperborea**. LESSER SNOW GOOSE.— Occasional in winter.

55. **Anser albifrons gambeli**. WHITE-FRONTED GOOSE.— Occasionally reported by sportsmen in winter.

56. **Branta canadensis**. CANADA GOOSE.— Frequent migrant, seen occasionally throughout the winter.

57. **Branta canadensis hutchinsii**. HUTCHINS GOOSE.— Frequent in winter.

58. **Branta nigricans**. BLACK BRANT.— Common on salt water during winter.

59. **Olor columbianus**. WHISTLING SWAN.— Occasionally taken in winter.

60. **Botaurus lentiginosus**. AMERICAN BITTERN.— Frequent resident, breeding in Nooksack and other marshes.

61. **Ardea herodias**. GREAT BLUE HERON.— Common throughout the year about both fresh and salt water. To what extent if any *A. h. fannini* may be mingled with our herons is not yet determined.

62. **Grus canadensis**. LITTLE BROWN CRANE.— One specimen in my possession, taken nearby, is of this species.

63. **Grus mexicana**. SANDHILL CRANE.— Occasional migrants seen in flight are presumed to be chiefly of this species.

64. **Rallus virginianus**. VIRGINIA RAIL.— A resident occasionally seen in the marshes.

65. **Porzana carolina**. CAROLINA RAIL.— Rather rare. I have seen it in summer and autumn.

66. **Fulica americana**. AMERICAN COOT.— Common resident. Abundant in marshes in winter.

67. **Phalaropus lobatus**. NORTHERN PHALAROPE.— Occasional migrant.

68. **Gallinago delicata**. WILSON SNIPE.— Common except in summer.

69. **Tringa acuminata**. SHARP-TAILED SANDPIPER.— I secured four specimens of this rare species from a flock at the mouth of the Nooksack River Sept. 2, 1892.

70. **Actodromas maculata**. PECTORAL SANDPIPER.— Occurs occasionally during migrations, at times in considerable numbers.

71. **Actodromas minutilla**. LEAST SANDPIPER.— Common during migrations.

72. **Pelidna alpina sakhalina**. RED-BACKED SANDPIPER.— Frequently seen during migrations.

73. **Ereunetes occidentalis**. WESTERN SANDPIPER.— Common during migrations, often occurring in large flocks.

74. **Totanus melanoleucus**. GREATER YELLOW-LEGS.— Regularly seen in small numbers.

75. **Totanus flavipes**. LESSER YELLOW-LEGS.— An occasional migrant of irregular occurrence.

76. **Actitis macularia**. SPOTTED SANDPIPER.— Occurs sparingly as a regular summer resident.

77. **Numenius hudsonicus**. HUDSONIAN CURLEW.— Occasionally seen in spring.

78. **Squatarola squatarola**. BLACK-BELLIED PLOVER.— Occasional during migrations.

79. **Oxyechus vociferus**. KILLDEER.— Occasional. I have seen it only in fall and winter.

80. **Arenaria melanocephala**. BLACK TURNSTONE.— A specimen in my possession was taken from a flock of three at Bellingham Bay Feb. 8, 1894.

81. **Hæmatopus bachmani**. BLACK OYSTER-CATCHER.— A few pairs are found distributed among the islands in summer, where they breed.

82. **Colinus virginianus**. BOB-WHITE.— Common on the islands and at some points on the mainland. This, like the following two, is an introduced species.

83. **Oreortyx pictus**. MOUNTAIN PARTRIDGE.— Common on the islands; occasional on the mainland.

84. **Lophortyx californicus**. CALIFORNIA PARTRIDGE.— Common on the islands, particularly the low-lying ones.

85. **Dendragapus obscurus fuliginosus**. SOOTY GROUSE.— Common resident among the mountains, but rare in the lowlands.

86. **Bonasa umbellus togata**. CANADIAN RUFFED GROUSE.— Specimens are occasionally taken in the mountains which are undoubtedly of this subspecies.

87. **Bonasa umbellus sabini**. OREGON RUFFED GROUSE.— Common resident except among the higher mountains.

88. **Lagopus leucurus**. WHITE-TAILED PTARMIGAN.— Occasionally met with at snow-line in the mountains. In severe winters it has been taken among the foothills about Lake Whatcom.

89. **Phasianus torquatus**. RING-NECKED PHEASANT.— This elegant game bird found its way into Whatcom County from British Columbia about 1898, and within five years became common throughout the lowlands. It has also been introduced on some of the islands.

90. **Columba fasciata**. BAND-TAILED PIGEON.— A summer resident common in localities. It is doubtless diminishing in numbers.

91. **Zenaidura macroura**. MOURNING DOVE.— Rare summer resident.

92. **Cathartes aura**. TURKEY VULTURE.— Occasional resident.

93. **Circus hudsonicus**. MARSH HAWK.— Of frequent occurrence in the marshes.

94. **Accipiter velox**. SHARP-SHINNED HAWK.— Occasionally seen.

95. **Accipiter cooperii**. COOPER HAWK.— Rare.

96. **Accipiter atricapillus striatulus**. WESTERN GOSHAWK.— Occasional.

97. **Buteo borealis calurus**. WESTERN RED-TAILED HAWK.— Quite rare.

98. **Buteo swainsoni**. SWAINSON HAWK.— Rare summer visitor.

99. **Aquila chrysaëtos**. GOLDEN EAGLE.— Seen occasionally in the mountains.

100. **Haliæetus leucocephalus**. BALD EAGLE.— Occurs frequently as a resident.

101. **Falco peregrinus anatum**. DUCK HAWK.— Rather rare resident. Breeds.

102. **Falco columbarius**. PIGEON HAWK.— I have taken it I believe.

103. **Falco columbarius suckleyi**. BLACK MERLIN.— A specimen in my possession is of this subspecies. It is very difficult to distinguish between this and the preceding species in the field, but one or the other, or both, together, are frequent residents.

104. **Falco sparverius phalœna**. DESERT SPARROW HAWK.— Common summer resident.

105. **Pandion haliaëtus carolinensis**. AMERICAN OSPREY.— Common summer resident.

106. **Asio accipitrinus**. SHORT-EARED OWL.— Occasional in winter in the marshes.

107. **Scotiaptex nebulosa**. GREAT GRAY OWL.— Rare. I know of but two instances of its being taken in the county.

108. **Cryptoglaux tengmalmi richardsoni**. RICHARDSON OWL.— One specimen in my possession was taken at Glacier, Whatcom County.

109. **Megascops asio kennicottii**. KENNICOTT SCREECH OWL.— Frequent resident.

110. **Bubo virginianus pallescens**. WESTERN HORNED OWL.— Frequent resident.

111. **Bubo virginianus saturatus**. DUSKY HORNED OWL.— Common. Coloration of the plumage of the Horned Owls shows considerable variation.

112. **Nyctea nyctea**. SNOWY OWL.— Occasional winter visitor, appearing some seasons in numbers, and at others not at all.

113. **Surnia ulula caparoch**. AMERICAN HAWK OWL.— Rare summer resident. I know of three specimens having been taken in the county.

114. **Speotyto cunicularia hypogæa**. BURROWING OWL.— Rare. One specimen has been taken at Bellingham.

115. **Glaucidium gnoma californicum**. CALIFORNIA PYGMY OWL.— Fairly common resident.

116. **Coccyzus americanus occidentalis**. CALIFORNIA CUCKOO.— Occasional summer resident.

117. **Ceryle alcyon**. BELTED KINGFISHER.— Common resident throughout the year.

118. **Dryobates villosus harrisii**. HARRIS WOODPECKER.— Frequently met with throughout the year.

119. **Dryobates pubescens gairdnerii.** GAIRDNER WOODPECKER.— Frequent throughout the year.

120. **Picoides arcticus.** ARCTIC THREE-TOED WOODPECKER.— A specimen in my possession was taken in this county March 8, 1905.

121. **Sphyrapicus varius nuchalis.** RED-NAPED SAPSUCKER.— I have taken one specimen in the mountains.

122. **Sphyrapicus ruber notkensis.** NORTHERN RED-BREASTED SAPSUCKER.— Frequent resident.

123. **Ceophlœus pileatus abieticola.** NORTHERN PILEATED WOODPECKER.— A resident, frequent throughout the year.

124. **Asyndesmus torquatus.** LEWIS WOODPECKER.— Summer resident, frequent in certain localities.

125. **Colaptes cafer saturatior.** NORTHWESTERN FLICKER.— Common resident, less numerous in winter.

126. **Chordeiles virginianus henryi.** WESTERN NIGHTHAWK.— Common summer resident.

127. **Cypseloides niger borealis.** BLACK SWIFT.— Occasional summer resident, frequently appearing in numbers in early June.

128. **Chætura vauxi.** VAUX SWIFT.— Frequent summer resident.

129. **Selasphorus rufus.** RUFOUS HUMMINGBIRD.— Common summer resident. I have seen it as early as February.

130. **Selasphorus alleni.** ALLEN HUMMINGBIRD.— Frequent resident.

131. **Stellula calliope.** CALLIOPE HUMMINGBIRD.— Rare.

132. **Tyrannus tyrannus.** KINGBIRD.— Occasional summer resident.

133. **Tyrannus verticalis.** ARKANSAS KINGBIRD.— Occasional summer resident.

134. **Nuttallornis borealis.** OLIVE-SIDED FLYCATCHER.— Frequent summer resident.

135. **Contopus richardsonii.** WESTERN WOOD PEWEE.— Frequent summer resident.

136. **Empidonax difficilis.** WESTERN FLYCATCHER.— Common summer resident.

137. **Empidonax traillii.** TRAILL FLYCATCHER.— Common summer resident.

138. **Otocoris alpestris merrilli.** DUSKY HORNED LARK.— One specimen in my possession, which was taken in the mountains, is authoritatively assigned to this subspecies.

139. **Pica pica hudsonia.** AMERICAN MAGPIE.— Common in localities except in summer.

140. **Cyanocitta stelleri.** STELLER JAY.— A resident common throughout the year.

141. **Perisoreus obscurus.** OREGON JAY.— Common in the mountains and seen frequently in the lowlands in winter.

142. **Corvus corax principalis.** NORTHERN RAVEN.— Occasional resident among and near the mountains.

143. **Corvus brachyrhynchos.** AMERICAN CROW.— I have occasionally seen and have taken specimens believed to be of this species.

144. **Corvus caurinus**. NORTHWEST CROW.— A resident common throughout the year.

145. **Nucifraga columbiana**. CLARKE NUTCRACKER.— One specimen in my possession was taken in Bellingham Nov. 25, 1898.

146. **Molothrus ater**. COWBIRD.— I have seen one flock in mid-winter.

147. **Agelaius phœniceus caurinus**. NORTHWESTERN RED-WING.— Of frequent occurrence in the marsh lands, flocking in winter.

148. **Sturnella magna neglecta**. WESTERN MEADOWLARK.— Common throughout the year.

149. **Euphagus cyanocephalus**. BREWER BLACKBIRD.— Frequent at all seasons, flocking in winter.

150. **Hesperiphona vespertina montana**. WESTERN EVENING GROSBEAK.— Occasionally seen in the mountains in summer and in the lowlands in winter.

151. **Carpodacus purpureus californicus**. CALIFORNIA PURPLE FINCH. — Common; occasional in winter.

152. **Loxia curvirostra minor**. AMERICAN CROSSBILL.— Occasional resident.

153. **Leucosticte tephrocotis littoralis**. HEPBURN LEUCOSTICTE.— Occasional in the mountains. I have taken it at Bellingham in winter.

154. **Astragalinus tristis salicamans**. WILLOW GOLDFINCH.— I had seen but one pair of this species previous to the spring of 1908, when they appeared a number of times in one particular locality.

155. **Spinus pinus**. PINE SISKIN.— Frequently seen throughout the year, usually in considerable flocks.

156. **Passer domesticus**. ENGLISH SPARROW.— Common in Bellingham, where it made its first appearance in 1900.

157. **Passerina nivalis**. SNOWFLAKE.— Rare. I have seen but one specimen, which was taken Nov. 10, 1897.

158. **Passerculus sandwichensis alaudinus**. WESTERN SAVANNA SPARROW.— Common summer resident.

159. **Zonotrichia leucophrys nuttalli**. NUTTALL SPARROW.— Common summer resident.

160. **Zonotrichia coronata**. GOLDEN-CROWNED SPARROW.— Frequently observed as a migrant.

161. **Spizella socialis arizonæ**. WESTERN CHIPPING SPARROW.— Frequent summer resident.

162. **Junco hyemalis shufeldti**. SHUFELDT JUNCO.— A frequent summer resident and abundant throughout the remainder of the year. I cannot say that all our Juncos are of this subspecies, but I have not yet taken a satisfactory specimen of *J. h. oregonus*.

163. **Melospiza cinerea morphna**. RUSTY SONG SPARROW.— Common throughout the year.

164. **Melospiza cinerea rufina**. SOOTY SONG SPARROW.— Taken at all seasons. In the field this subspecies is with difficulty distinguished from the preceding, hence the relative abundance of the two is problematic.

One Song Sparrow specimen submitted by me to the U. S. Bureau of Biological Survey is identified as belonging to the proposed subspecies *M. c. phæa*, "Oregon Song Sparrow."

165. **Passerella iliaca fuliginosa**. SOOTY FOX SPARROW.— Occasional summer resident.

166. **Pipilo maculatus oregonus**. OREGON TOWHEE.— Resident; common throughout the year.

167. **Zamelodia melanocephala**. BLACK-HEADED GROSBEAK.— Occasional summer resident.

168. **Cyanospiza amœna**. LAZULI BUNTING.— Occasional summer resident.

169. **Piranga ludoviciana**. LOUISIANA TANAGER.— Frequent summer resident.

170. **Progne subis hesperia**. WESTERN MARTIN.— Frequent summer resident.

171. **Petrochelidon lunifrons**. CLIFF SWALLOW.— I have seen one bird which clearly appeared to be of this species.

172. **Hirundo erythrogastra**. BARN SWALLOW.— Common summer resident.

173. **Iridoprocne bicolor**. WHITE-BELLIED SWALLOW.— Common summer resident.

174. **Tachycineta thalassina lepida**. NORTHERN VIOLET-GREEN SWALLOW.— Frequent summer resident. More common during migrations.

175. **Stelgidopteryx serripennis**. ROUGH-WINGED SWALLOW.— Frequent summer resident.

176. **Ampelis garrulus**. BOHEMIAN WAXWING.— A bird of this species was brought to me March 24, 1903. It was taken in this city, and may possibly have been an escaped cage bird.

177. **Ampelis cedrorum**. CEDAR WAXWING.— Common resident; not infrequent in winter.

178. **Lanius borealis**. NORTHERN SHRIKE.— Occasional in winter.

179. **Vireo gilvus swainsonii**. WESTERN WARBLING VIREO.— Common summer resident.

180. **Vireo solitarius cassinii**. CASSIN VIREO.— Rare summer resident.

181. **Vireo huttoni**. HUTTON VIREO.— Rare. I have taken a specimen as late as Nov. 16. Identification was made by the Bureau of Biological Survey.

182. **Helminthophila celata lutescens**. LUTESCENT WARBLER.— Our most abundant warbler; a summer resident.

183. **Dendroica æstiva**. YELLOW WARBLER.— Common summer resident.

184. **Dendroica coronata**. MYRTLE WARBLER.— I saw this species in the spring of 1908 on several occasions. Its resemblance to the female *D. auduboni* is perhaps the cause of its having formerly been overlooked.

185. **Dendroica auduboni**. AUDUBON WARBLER.— Frequent as a summer resident, and not infrequent in winter.

186. **Dendroica nigrescens**. BLACK-THROATED GRAY WARBLER.— Occasional summer resident.

187. **Dendroica townsendi**. TOWNSEND WARBLER.— Rare summer resident.

188. **Geothlypis tolmiei**. MACGILLIVRAY WARBLER.— Common summer resident.

189. **Geothlypis trichas arizela**. PACIFIC YELLOW-THROAT.— Frequent summer resident in the vicinity of marshes.

190. **Wilsonia pusilla pileolata**. PILEOLATED WARBLER.— Common summer resident — or at least, it and the following subspecies together are common.

191. **Wilsonia pusilla chryseola**. GOLDEN PILEOLATED WARBLER.— I am not as yet able to say how this subspecies compares in abundance with the preceding. Specimens submitted by me to the U. S. Bureau of Biological Survey are reported to have included both subspecies.

192. **Anthus pensilvanicus**. AMERICAN PIPIT.— Common during migrations, particularly in autumn, appearing in flocks.

193. **Cinclus mexicanus**. WATER OUZEL.— Frequent along mountain streams in summer and occasional in winter.

194. **Thryomanes bewickii calophonus**. NORTHWEST BEWICK WREN.— Resident throughout the year; common in summer.

195. **Troglodytes aëdon parkmanii**. PACIFIC HOUSE WREN.— Frequent summer resident.

196. **Olbiorchilus hiemalis pacificus**. WESTERN WINTER WREN.— Common in winter and frequent as a summer resident.

197. **Telmatodytes palustris paludicola**. TULE WREN.— Common summer resident of marsh lands; frequent in winter.

198. **Certhia familiaris occidentalis**. TAWNY CREEPER.— Occasional summer resident.

199. **Sitta canadensis**. RED-BREASTED NUTHATCH.— Occasional summer resident.

200. **Parus atricapillus occidentalis**. OREGON CHICKADEE.— Common throughout the year.

201. **Parus rufescens**. CHESTNUT-BACKED CHICKADEE.— Resident throughout the year. Occasional.

202. **Psaltriparus minimus saturatus**. PUGET SOUND BUSH-TIT.— Rare summer resident.

203. **Regulus satrapa olivaceus**. WESTERN GOLDEN-CROWNED KINGLET.— Common throughout the year.

204. **Regulus calendula**. RUBY-CROWNED KINGLET.— Seen occasionally.

205. **Regulus calendula grinnelli**. SITKAN KINGLET.— Occasional in winter and during migrations.

206. **Myadestes townsendii**. TOWNSEND SOLITAIRE.— Occasional summer resident, more commonly at high altitudes.

207. **Hylocichla ustulata**. RUSSET-BACKED THRUSH.— Everywhere common in summer.

208. **Hylocichla guttata nana**. DWARF HERMIT THRUSH.— Rare. I have taken one specimen during spring migration pronounced by the Bureau of Biological Survey to be of this subspecies.

209. **Merula migratoria**. AMERICAN ROBIN.— Occasional. I cannot say just how it compares in abundance with the following subspecies.

210. **Merula migratoria propinqua**. WESTERN ROBIN.— Common in summer and frequent in winter.

211. **Ixoreus nævius**. VARIED THRUSH.— Common in the mountains in summer and frequent in the lowlands in winter.

212. **Sialia mexicana**. WESTERN BLUEBIRD.— Frequent summer resident and occasional in winter.

HYPOTHETICAL LIST.

1. **Synthliboramphus antiquus**. ANCIENT MURRELET.— Birds seen on several occasions were strongly suspected of belonging to this species.

2. **Stercorarius pomarinus**. POMARINE JAEGER.— One specimen taken has been noted as of this species, but identification was unsatisfactory.

3. **Phalacrocorax pelagicus robustus**. VIOLET-GREEN CORMORANT.— Believed to be not infrequent among our winter Cormorants.

4. **Larus vegæ**. VEGA GULL.— In January, 1905, a gull was observed by Mr. W. L. Dawson and myself at Bellingham, which was suspected of being *L. vegæ*.

5. **Aythya affinis**. LESSER SCAUP DUCK.— Birds probably of this species have been seen but thus far no satisfactory specimen has been secured.

6. **Aythya collaris**. RING-NECKED DUCK.— This species also is believed to have been seen, though none have been taken.

7. **Branta canadensis occidentalis**. WHITE-CHEEKED GOOSE.— Descriptions from sportsmen of geese taken by them would suggest that they were of this subspecies.

8. **Ardea herodias fannini**. NORTHWEST COAST HERON.— Specimens seen may perhaps be assigned to this subspecies.

9. **Charadrius dominicus**. GOLDEN PLOVER.— A sportsman who is familiar with the species avers that he once saw a flock and took specimens at a point near Bellingham.

10. **Ægialitis semipalmata**. SEMIPALMATED PLOVER.— A flock seen by me were thought to be of this species.

11. **Canachites franklinii**. FRANKLIN GROUSE.— Reported by a sportsman as having been taken at a point twenty miles northeast of Bellingham.

12. **Empidonax hammondii**. HAMMOND FLYCATCHER.— Birds have been seen which were thought to be of this species.

13. **Passerculus sandwichensis**. SANDWICH SPARROW.— Birds observed are supposed to have been of this species, though no satisfactory specimen has yet been secured.

14. **Junco hyemalis oregonus**. OREGON JUNCO.— Presumed to occur to some extent among the abundant winter Juncos, though unquestionable specimens have not been taken.

15. **Acanthis linaria.** REDPOLL.— A bird has been seen which was probably of this species.

16. **Passerella iliaca unalaschensis.** TOWNSEND SPARROW.— Specimens observed prior to the recognition of *P. i. fuliginosa* were recorded as of this subspecies, perhaps not always erroneously.

17. **Riparia riparia.** BANK SWALLOW.— I have several times seen birds thought to be of this species, but have failed to secure a specimen.

LIST OF THE BIRDS OF LOUISIANA. PART V.

BY G. E. BEYER, ANDREW ALLISON, AND H. H. KOPMAN.

(*Continued from page 180.*)

129. BOB-WHITE (*Colinus virginianus*). A common resident except in the swamp sections of the southeastern part of the State; but even in this low, fertile alluvial district, the Bob-white is fairly well established about the large sugar plantations, the thorough drainage of the land in such cases providing a suitable habitat for the species. In the uplands, this bird is most abundant in piney sections. In the southern part of the State mating begins about March 1, and nesting is well under way by the middle of April. Two broods are frequently reared, and birds just beginning to fly may often be seen as late as September 1.

The natural cover of Bob-whites in the piney sections is the edges of the runs or "branches" with which such country is interspersed. The birds usually seek such cover when flushed in the open pines. The thicket-like growths of small oak and hickory and of such shrubs and vines as witchhazel, smilax, and sumach that often occur in the higher portions of the pine woods also serve as excellent cover for Bob-whites, from a standpoint of both food and shelter. In the fertile alluvial section of the southeast, the sugar cane or corn and the edges of the swamp give this species its necessary cover. On model plantations, the ditch banks are kept clean, but in some cases Bob-whites may resort to them in safety.

130. PRAIRIE HEN (*Tympanuchus americanus*). This species, represented in western Louisiana by probably both the typical form, and by Attwater's Prairie Hen (*T. americanus attwateri*) is growing constantly scarcer in the State, and is known only near the Texas border.

131. WILD TURKEY (*Meleagris gallopavo silvestris*). The Wild Turkey is still common in some sections of the State. It appears to be entirely absent from the typical fertile alluvial section of the southeast. It is commonest in piney sections, and extends its range as far as the coast through the narrow strip of piney lands on the west of Pearl River.

132. PASSENGER PIGEON (*Ectopistes migratorius*). The last recorded occurrence of this species in Louisiana was during the extremely severe weather of February, 1895, when two were taken at Mandeville. One of these birds is in the museum of Tulane University.

133. MOURNING DOVE (*Zenaidura macroura*). Resident, but decidedly commoner in winter, an increase occurring at the latitude of the coast about October 1. This species is more generally distributed in the breeding season in the upland regions than near the coast, but in the latter section it nests freely about some of the plantations, especially in central southern Louisiana. It is most generally dispersed in the coast region in fall.

Nesting extends over a long period, the earliest record being April 17 (Ellisville, Mississippi, 1908), and young birds being found in the nest until late in September. The site is also variable: rarely the nest is placed on the ground, but pines and twiggy branches of deciduous trees are much more usual. One nest was observed in a dead plum bush, completely surrounded by the long moss-like Usnea. In southeastern Louisiana nests have been found in low willows over the water.

Singing begins a little after the middle of February, and continues until July; or even August, though this is not general.

134. WHITE-WINGED DOVE (*Melopelia leucoptera*). Birds unquestionably of this species have twice been killed on Grand Isle,— in May, 1894, and in August, 1895, and were reported and described by the captor, but the specimens were not saved for identification, owing to the heat (Beyer).

135. GROUND DOVE (*Columbigallina passerina terrestris*). A resident, but decidedy rare in most localities.

136. TURKEY VULTURE (*Cathartes aura*). An abundant resident, but not so common as the following species; slightly commoner in the northern part of the State than in the southern.

137. BLACK VULTURE (*Catharista urubu*). A very abundant resident, slightly commoner in the southern part of the State than in the northern. The proportion of this species to the preceding in southern Louisiana is probably about 3 to 1. Soaring flocks containing only this species are more frequently seen than flocks containing only Turkey Vultures, though the usual flock is composed of both species, with the Black Vultures preponderating. The Turkey Vulture flying singly is more often seen than the Black Vulture under similar circumstances.

Some notes follow, on the feeding habits of the two vultures. It may be stated first, that a common method of approach, in the case of *Catharista*, is a rapid and direct hurtling down, with the wings half-closed, producing a loud rushing sound. This brings the bird to within a hundred feet or less of the ground.

"I watched some Vultures at a dead horse to-day, and was much interested, although I could not, like Wilson, steal up until my feet were within a yard of the horse's legs, and sit down. The Black Vultures settle down in a much less dignified way than the Turkey Vultures: they begin, from

some distance up, to drop down at an angle of about sixty degrees, legs hanging, and wings flapping furiously. The other species circles about for some minutes, getting lower and lower, before it finally settles down, with less quick flapping than the Carrion Crow employs. The method of procedure with a carcass seems to be: To clean off the exterior trimmings first, then make a large hole under the tail — by which Wilson says they enter — and one in the side, from both of which they reach the entrails."

138. SWALLOW-TAILED KITE (*Elanoides forficatus*). A rather common summer resident in some sections, especially in the southern part of the State, where it often frequents the vicinity of bayous. It enters the State about April 1. (March 18, 1902, Bay St. Louis, Miss.). In the early fall, beginning about August 15, it collects in small flocks, often associating with the Mississippi Kite. At such times, it feeds largely on cicadas — or "locusts," as they are called in Louisiana; to secure this prey it remains in the neighborhood of cornfields on the plantations in the southern part of the State.

139. WHITE-TAILED KITE (*Elanus leucurus*). An accidental visitor. One was shot on the west bank of the Mississippi, opposite Kenner, on October 11, 1890 (Beyer).

140. MISSISSIPPI KITE (*Ictinia mississippiensis*). A rather common summer resident, preferring somewhat elevated country to the immediate coast section. In the early fall, however, it frequents the plantations of the southern part of the State in large flocks to prey on the cicadas in the cornfields. It arrives in spring during the first week of May.

141. MARSH HAWK (*Circus hudsonius*). A resident, but occurring in the southeastern section of the State chiefly if not entirely as a winter visitor. Breeding most commonly in the southwestern, or prairie section of the State. Winter visitors arrive in southeastern Louisiana the latter part of September, and remain until the latter part of March. It is common during this period in nearly all open localities.

142. SHARP-SHINNED HAWK (*Accipiter velox*). Chiefly a winter visitor, but has been observed in the southern part of the State occasionally in summer. Like most of the other hawks, this and the following species are present chiefly from October to March.

143. COOPER'S HAWK (*Accipiter cooperi*). Its movements are similar to those of the preceding species. Both of these breed more commonly in the upper districts.

144. HARRIS'S HAWK (*Parabuteo unicinctus harrisi*). Not observed by any of the writers, but has been reported as occurring along the coast and on some of the larger islands (Beyer).

145. RED-TAILED HAWK (*Buteo borealis*). A common winter visitor, occurring in about equal abundance in all sections, arriving at the coast about October 1, and departing the latter part of March.

146. KRIDER'S HAWK (*Buteo borealis kriderii*). A rather rare winter visitor.

147. HARLAN'S HAWK (*Buteo borealis harlani*). Rather common as

a winter visitor. None of the writers has evidence of its breeding in Louisiana.

148. RED-SHOULDERED HAWK (*Buteo lineatus*). A common winter visitor.

149. FLORIDA RED-SHOULDERED HAWK (*Buteo lineatus alleni*). A resident, and the commonest hawk in the State.

150. BROAD-WINGED HAWK (*Buteo platypterus*). Chiefly if not entirely a summer visitor, and confined as a breeder to the upland regions, especially pinewood sections. Usually makes its appearance in the southern part of the State about the end of March, and disappears in September.

151. AMERICAN ROUGH-LEGGED HAWK (*Archibuteo lagopus sancti-johannis*). A rather rare winter visitor.

152. GOLDEN EAGLE (*Aquila chrysaëtos*). A specimen of this bird exhibited in the Mississippi Fish and Game display at the Louisiana Purchase Exposition in St. Louis, in 1904, was recorded by the taxidermist, Mrs. Carrie S. Vaughn, of Natchez, Miss., as having been killed at Jackson, La.

153. BALD EAGLE (*Haliæetus leucocephalus*). Resident; breeds in various parts of the State, especially near the coast. Several nests were located for a number of years in tall dead cypresses in the swamps on the southern shore of Lake Pontchartrain near New Orleans.

154. DUCK HAWK (*Falco peregrinus anatum*). A common winter visitor in some sections, frequenting especially the marshes about the delta of the Mississippi, where it preys largely upon ducks and coots.

155. PIGEON HAWK (*Falco columbarius*). A fairly common winter visitor, appearing in the southern part of the State about the middle of September, and remaining until the latter part of March. It is commoner in open localities.

156. AMERICAN SPARROW HAWK (*Falco sparverius*). Resident, except in most of the southern part of the State. It reappears in considerable numbers at the latitude of the coast the latter part of August, and grows very common in September, disappearing from the coast section by the middle of March. It is about equally common in all sections of the State.

157. AUDUBON'S CARACARA (*Polyborus cheriway*). Restricted to the immediate coast section, west of the Mississippi River, being fairly common in some localities (Beyer).

158. AMERICAN OSPREY (*Pandion haliaëtus carolinensis*). Occurs in nearly all sections of the State, but is most abundant in the southern part, breeding along the coast and about the shores of lakes and inlets.

159. AMERICAN BARN OWL (*Strix pratincola*). Rather generally distributed, but nowhere common. In the sugar districts of Louisiana, the ruins of the old-fashioned brick sugar houses frequently provide suitable haunts for this species.

160. AMERICAN LONG-EARED OWL (*Asio wilsonianus*). A rather rare winter visitor. A wing-quill of this species was found near Abbeville on June 18, 1904.

161. SHORT-EARED OWL (*Asio accipitrinus*). A rather common winter visitor, arriving in October, and remaining until March. It may be found in various open localities, including marshes, prairies, and plantations. An apparently authentic record exists of the breeding of this owl in Jones County, Mississippi, about 32° latitude. A discussion of the Screech Owl before a group of school children elicited from one of them the information that a nest containing "six little owls" had been found on the ground in her father's garden. It seems not possible that these could have been anything but this species.

162. BARRED OWL (*Syrnium nebulosum*). Occurs chiefly in the colder portions of the winter.

163. FLORIDA BARRED OWL (*Syrnium nebulosum alleni*). An abundant resident in all parts of the State.

164. SAW-WHET OWL (*Nyctala acadica*). There is only one record of the occurrence of this species in Louisiana known to any of the writers. This bird was killed in December, 1889, near Madisonville.

165. FLORIDA SCREECH OWL (*Megascops asio floridanus*). A common resident in all sections of the State.

166. GREAT HORNED OWL (*Bubo virginianus*). A resident, but not common in all parts of the State; occurs rather plentifully in the pine hills in the parishes north of Lake Pontchartrain. It is not very common in the fertile alluvial section of the southeastern part of the State.

167. SNOWY OWL (*Nyctea nyctea*). The late Mr. Gustav Kohn, of Paris and New Orleans, who spent a large part of his life forming a private collection of the fauna of Louisiana, recorded the occurrence of this owl at Baton Rouge a number of years ago. An owl said to have been of this species was killed at Bayou Des Allemands during the winter of 1878–1879 (Beyer).

168. BURROWING OWL (*Speotyto cunicularia hypogæa*). This bird is reported as being common about Jackson, and a male collected there November 24, 1898, is now in the museum of Tulane University. This owl has been observed also in Plaquemine Parish by Dr. H. L. Ballowe.

169. CAROLINA PAROQUET (*Conurus carolinensis*). There is a specimen of this bird in the Tulane museum that was undoubtedly collected in Louisiana, but when or where has not been determined. In localities where this species might still be expected to occur, the inhabitants did not know that a paroquet had ever occurred in Louisiana, and it is extremely doubtful whether this species should still be considered a Louisiana bird.

170. ANI (*Crotophaga ani*). The following notes, contributed by Dr. H. L. Ballowe, Coroner of Plaquemine Parish, and copied almost verbatim from his letter, represent almost the sum total of our knowledge of the Ani in Louisiana. It has been reported occasionally from St. Bernard Parish (Beyer), and once rather doubtfully from New Orleans.

"....One killed at Diamond in midsummer, 1893 [Now in Tulane University collection]. On January 29, 1906, I saw one in Buras. Got within a few feet of it. Heard its note. On January 14, 1908, I saw one

a few miles below Buras. On January 27, I saw another at Buras. February 8, I saw four together at Buras. All that I saw were on the public road, very gentle, hopping along the fences or among the low branches of orange trees.

"I saw young oranges that had been bitten into, the damage of which was blamed on them. Grackles are very destructive in orchards, but they *peck* the fruit. These oranges had *sections bitten out.* I understand that flocks of Anis are still seen in some orchards, but that twenty years ago they were *very* numerous and destructive."

171. GROOVE-BILLED ANI. (*Crotophaga sulcirostris*). Occasional in the southern parishes. One taken near New Orleans about 1890 is in the Tulane University collection.

172. YELLOW-BILLED CUCKOO (*Coccyzus americanus*). Few birds are more generally distributed in Louisiana than this species, and, though it is not unusually plentiful in any section, few are more uniformly common. Any deciduous tree growth attracts it, though it is commonest in moist situations. Yet it is by no means rare in scanty broad-leafed growths in the driest parts of pine hills and barrens. While the scrubby blackjack oaks of such situations often serve to conceal it, it is fondest, of course, of more leafy covers; but it resorts almost as readily to close groves in the open as to the forest. Probably it occurs in greatest abundance where cultivation borders the swamp or woodland in the lowlands. Low growths are most attractive to it when they occur in very wet localities, so that it often occurs in the marshes among the farthest outposts of the swamp.

The average date of the general arrival of this species in the latitude of New Orleans is April 15, though an irregular movement may occur the first week in April. The earliest recorded movement for the neighborhood of New Orleans is April 2 and the latest May 8. In advanced seasons it is decidedly common by April 20; in late seasons, no large numbers will be seen until May 1. It is seldom conspicuous except for a day or two at a time, after the middle of September, though the last has been observed at New Orleans on November 3, and a considerable passage of transients has been noted as late as October 13 (1894). Nesting begins very shortly after arrival, and laying usually begins about May 15. There are undoubtedly two broods raised in a season, fresh eggs having been discovered in July. A comparatively little choice seems to be exercised in regard to nesting sites, except that low nests are commonest in wet situations. The nidification in Louisiana does not differ essentially from that of the species elsewhere, though, of course, its materials there are peculiar in some cases. Near Jeanerette, St. Mary Parish, one of the writers found a strange cuckoo's nest on July 5, 1895. It was in a buttonbush (*Cephalanthus*) over the water; the foundation was lichen-covered oak twigs; the lining consisted of moss and dry cypress leaves. A very similar nest was found in Plaquemine Parish on June 9, 1904.

The habit of flying by night, and uttering its song as it flies, is very well marked. The migrations seem to be performed usually in silence; but after the first of May the nocturnal song is a common sound.

173. BLACK-BILLED CUCKOO (*Coccyzus erythrophthalmus*). This species is decidedly rare, though the difficulty of always distinguishing it from the preceding species doubtless causes it to be overlooked sometimes. A close lookout for it in southeastern Louisiana during the past ten or twelve years, however, has resulted in the observation of but one individual, which was seen at New Orleans, October 8–11, 1899. At Bay St. Louis, Miss., it has been observed of late years on the following dates: August 15, 1898; April 14, 1902; and October 15, 1902. It occurs only as a transient, of course.

174. BELTED KINGFISHER (*Ceryle alcyon*). Occurring chiefly along the coast, this species is nevertheless to be looked for at some season of the year on every water-course in the State. In winter it is almost confined to the coast and to the vicinity of the larger bodies of fresh water; but in the breeding season it is frequent also on the small creeks of the pine regions, and the stagnant sloughs of the swamps.

The character of the nest varies greatly with differing conditions of soil: On the coast it is content with such elevations as can be found on the shores, and the burrow is sometimes scarcely more than a pocket in the clayey banks; in the upper districts, the site is often far from water, and the soft, coarse-grained soil renders easy the excavation of a burrow five or six feet deep, enlarged at the end, and often partly lined with leaves and pine straw; and, finally, a unique condition exists in the extensive gum-swamps in the lake region of the southeast, where the land — always submerged — is perfectly flat, and nothing stands above water except innumerable trees and stumps of Nyssa: the nest is placed in the top of a decaying stump, with no attempt at excavation.

The kingfisher is charged with much harm to the levees along the Mississippi River, in which the nest-burrows are said to be very long and tortuous. It is possible that the softness of the soil is conducive to such extensive burrowing; but the matter has not yet been sufficiently investigated. At any rate, the great destructiveness to young crawfish that is acknowledged to be characteristic of the kingfishers in the fertile alluvial districts, would seem to offset the damage done to the levees; for the constant burrowing of these crustaceans, near the water-line, is a source of danger and annoyance to those dependent upon the levees for protection.

A well-marked migration takes place during the last week of March; the increase at that time is obvious everywhere, and it is then that the species first appears on the small streams of the interior. Two of the writers found, on March 25, 1907, what seemed to be a temporary resting-place constructed by a newly-arrived kingfisher, which was seen near it: this was a shallow pocket in the high bank of a creek in the interior, lined with green moss and pine straw. Whether or not such structures are usual, and whether this was intended to serve later as a nest, I cannot say: but deeper burrowing would have been easy, in the sandy soil of this bluff.

175. IVORY-BILLED WOODPECKER (*Campephilus principalis*). This

great woodpecker is probably confined to the deep swampy forests of northern Louisiana, where it is locally not uncommon. The following remarks, quoted here, for convenient reference, from 'The Auk,' Vol. XVII, 1900, pp. 97–99, are based upon observations made by Prof. Beyer in Franklin Parish in 1899, "in an almost inaccessible swamp, which extends from the most northern portion of Franklin Parish, between the Tensas River and Bayou Maçon, to Black River."

"The borders of Big Lake — in the midst of a heavy cypress swamp,— as well as the banks of some of the larger cross-bayous, are heavily timbered with ash, oak, and elm. In some of such localities are the homes of the Ivory-bill, and from them they do not appear to stray very far; in fact, I was assured that the range of a pair of these birds does not extend more than a mile from their nest.

"....We could hear quite frequently the rather plaintive but loud cry of the "Log-god" — for such the bird is called....in that section of the State....They are certainly noisy, and by their oft-repeated cry we became accustomed to locate them....

"But when Audubon states that they never build in dead or even dying trees, he was certainly mistaken; for I took one pair, with one of their progeny, from a nest situated in an old and nearly rotten white elm stump, a little over forty feet from the ground....We found and examined several nests; but we noticed only one — about twenty-five feet from the ground — in a *living* over-cup oak (*Quercus lyrata*).

"....I believe only one brood is raised; and the old birds continue to feed and care for their young long after they are able to take care of themselves. It was then near the middle of July, and old and young birds were still together; and the attention of the old ones was too entirely taken up by the young to leave any opportunity of preparing for a second brood."

176. SOUTHERN HAIRY WOODPECKER (*Dryobates villosus auduboni*). A fairly common resident in all forested regions. It shows no particular preference for one sort of timber over another, beyond shunning the most extended pine forests.

177. DOWNY WOODPECKER (*Dryobates pubescens*). A common resident, and well distributed, frequenting woodlands and orchards in practically all parts of the State. At the latitude of the coast, both the Downy and the Hairy Woodpecker begin nest-building in the first half of March. In most cases, two broods are raised, one in April, and one in June. In the Mississippi delta region, the Downy Woodpecker appears to prefer willow stubs as nesting sites. The Hairy Woodpecker nests indifferently in most of the common hardwoods.

178. RED-COCKADED WOODPECKER (*Dryobates borealis*). So far as we have been able to discover, this species is restricted to pine regions, and ordinarily it never enters the hardwood growths of such sections unless mixed with pine. It is resident wherever occurring. It is highly characteristic of the open long-leaf pine forests of the southern section of the State, and extremely common and noisy there. The time of breeding corresponds

rather closely with that of the Downy and Hairy Woodpeckers. It does not occur in southwestern Louisiana (Beyer).

179. YELLOW-BELLIED SAPSUCKER (*Sphyrapicus varius*). A regular and rather common winter visitor to all sections of the State, somewhat commoner in the upland regions. At the latitude of the coast, this species is present, from about October 15 to March 15. The first influx in the fall occurs, however, earlier in October, being about simultaneous with that of the migratory Red-shouldered Hawks and Barred Owls. The latest recorded date in spring is April 16 (Bay St. Louis, Miss., 1902).

180. PILEATED WOODPECKER (*Ceophlœus pileatus*). Common but retiring in most well-wooded sections of the State; it is seldom found in the pinewoods, however, except in hardwood growths. Its favorite haunts are the heaviest swamps. It usually nests high; nests are sometimes not more than 25 feet from the ground.

181. RED-HEADED WOODPECKER (*Melanerpes erythrocephalus*). The distribution and time of occurrence of this species in Louisiana are decidedly complicated. Perhaps its most important status is that of a common summer visitor to the dryer regions of the State, especially the pine belts and the bluff lands; yet it is irregularly resident throughout the State, and may be found nesting or wintering, sometimes nesting *and* wintering, in localities in every section. Though least common in the Mississippi delta region, it has of late years become a resident in Audubon Park, New Orleans, and in other environs of the city. In those sections where it nests only, it does not usually appear until the latter part of April, and in those localities where it is a common summer visitor, its numbers increase at this season. While this species in Louisiana, as elsewhere, is fond of the neighborhood of cultivation, it is occasionally found in hardwood forests at considerable distances from human habitation. It is very fond of the open pine forests of the southern part of the State.

Nesting begins about May 1; two broods are raised,—the first, at the coast, during the height of the mulberry and blackberry season; the second brood is raised during July, in the fig season.

182. RED-BELLIED WOODPECKER (*Centurus carolinus*). The typical swamps of the lowland, and the mixed hardwood bottoms of the higher regions are the usual resorts of this species. It is met with in open situations rather frequently, and often nests about groves as well as in the woods. It is probably the commonest of the generally distributed woodpeckers in Louisiana. In time, its nesting corresponds with that of the other regular resident species. In some localities of the Mississippi delta region, this species occurs on the sugar plantations in much the rôle of the Red-headed Woodpecker as found elsewhere; it often leaves the woods and swamps to nest in telegraph poles and other exposed situations; the analogy is carried out by resemblances in notes and other habits.

183. FLICKER (*Colaptes auratus*). A common winter visitor, in all sections rather uncommon, especially in the southern section, as a resident. The bulk of the winter visitors are undoubtedly Northern Flickers (*C.*

auratus luteus). At the latitude of the coast the winter influx usually occurs October 10. The last winter visitors leave the coast the last of March. On the whole, flickers are commoner in upland and piney regions in Louisiana than in the lowlands. The Flicker is for the most part a woodland species in Louisiana. It is sometimes common in tree-dotted fields and pastures, however, and not infrequently breeds in such situations.

184. NORTHERN FLICKER (*Colaptes auratus luteus*). While, as suggested in the notes on the preceding, this subspecies is undoubtedly a common winter visitor, to Mr. A. H. Howell and Mr. P. A. Taverner is due the credit for the only definite records. I quote from Mr. Howell's notes (Proc. Biol. Soc. Wash., Vol. XXI, 1908, pp. 119–124): "Occurs in small numbers in all timbered regions [of northwestern Louisiana]: particularly common at Lecompte. ....Taken also at Mansfield, April 27, 1907. .... The only previous record of the Northern Flicker from Louisiana appears to be that given by P. A. Taverner of a tagged Iowa bird shot at Many, December 25, 1905 (Auk, XXIII, 1906, p. 232)."

185. GILDED FLICKER (*Colaptes chrysoides*). The Gustave Kohn collection, recently added to the Tulane University Museum, contains a male of this species, labelled Deer Range Plantation, Plaquemine Parish, December, 1863. It has some trace of red on the primary quills, and some sub-basal black spots on the red feathers of the mustache.

THE KING CAMEOS OF AUDUBON.

BY C. HART MERRIAM.

Plate VII.

THROUGH the courtesy of O. Atkins Farwell of Detroit and Frederic H. Kennard of Boston I am enabled to lay before the readers of 'The Auk' photographic reproductions of two cameos of John James Audubon. Both photographs are from casts of intaglios cut by John C. King, a Scotch artist and sculptor of Boston.

The cameo shown in the Farwell photograph was cut in 1844, and the photograph was presented by the sculptor to Mr. Farwell's father in 1871. Mr. Farwell, who kindly called my attention to the existence of the cameo and sent me the photograph, has also con-

From the Farwell photograph.

From the Kennard cast.

THE KING CAMEOS OF AUDUBON.

tributed the following information. He says: "My father and Mr. King were great friends, and on one occasion when father dropped into Mr. King's studio, he found Mr. Audubon sitting for the cameo. Mr. King introduced the two gentlemen and asked them to start a conversation, which was continued through the sitting. The two men became so animated in their very interesting conversation that they forgot where they were, and thus the artist was enabled to catch the natural and striking expression of the great ornithologist, which he could not have obtained under ordinary circumstances. My father was charmed with the man and his conversation, and always so expressed his memory or the occasion."

The cast shown in the second photograph is the property of Mr. Frederic H. Kennard of Boston and, like the first, was made from an original intaglio cut in shell by the sculptor King. I learned of its existence from Miss Maria R. Audubon, granddaughter of the great naturalist, and on writing Mr. Kennard for particulars received a prompt reply, of which the following is an extract: "Mr. King was a friend of my father's and also I believe of John J. Audubon, and cut this intaglio from life. He gave the cast, together with several others, to my father, who was under the impression that the intaglio was made some time between 1840 and 1845." This cast, through the courtesy of its owner, is shown in the accompanying illustration.

The sculptor King, Mr. Kennard tells me, died April 21, 1882, and was buried in Mount Auburn Cemetery, Cambridge, Mass., April 25, 1882.

Neither Mr. Farwell nor Mr. Kennard knows for whom the cameos were originally cut or by whom they are at present owned, and I am informed by Miss M. R. Audubon that the Audubon family has no information on the subject. Possibly some reader of 'The Auk' may be able to supply the missing facts.

Concerning the Kennard cast, Miss Audubon writes that her mother did not think it a correct likeness because of the nose, "which is too heavy and not arched as grandfather's was; but the pose, and the head and forehead are very fine."

In February last I sent Miss Audubon a copy of the Farwell photograph, which she had not previously seen. In acknowledging it she says: "The photograph came with your letter. I am de-

lighted with it and quite agree with you in thinking it a notable and attractive likeness. The photograph which I have from the cameo [cast] owned by Mr. Kennard is not at all the same. Both have the same pose, and the hair, collar, and neck are the same, but there the points of resemblance cease....I hope you will publish it in 'The Auk.'"

The King cameos, which so far as I am aware have heretofore escaped public notice, are not only distinct additions to the known series of Audubon portraits, but to my mind form an important contribution to the material from which a true conception of Audubon's character may be gained. Most of the portraits are either poor, or show the naturalist as a young man, or in the decline of life; these reveal him at the noontide of his manhood and impress one with the strength and genius of his personality. The open frank expression, the clear eye, the firmly pressed lips, the strong nose and chin, the lofty forehead and the elevated pose of the head bespeak nobility of character, and make it easier to appreciate the vigor, determination, and courage that brought success in undertakings the very magnitude of which appals the ordinary man.

RECENT BIRD RECORDS FOR MANITOBA.

BY ERNEST THOMPSON SETON.

?LONG-TAILED SKUA. *Stercorarius longicaudus.* In September, 1896, Samuel Slater brought to Alexander Calder of Winnipeg, in whose collection it now is, an immature Long-tailed Skua, shot on Lake Winnipeg. Its dimensions are: Length, 16½ inches; wing, 12 in.; tail, 6½ in.; tarsus, 1¾ in.; middle toe and claw, 1⅝ in. All above sooty, except the neck, which is cream color, and crown, which is sharply blackish.

BLACK MALLARD OR DUSKY DUCK. *Anas obscura.* In my collection is a specimen from Shoal Lake taken by Geo. H. Meacham in 1901, and another taken near Winnipeg by W. R. Hine. According to Meacham two more were shot at Shoal Lake in 1899. C. C. Helliwell reports one taken on Lake Manitoba in the fall of 1898. It seems to be rare in this region yet it abounds on Athabaska River.

WOOD DUCK. *Aix sponsa.* Now shown to be a rare but regular summer visitant as far north as Lakes Winnipeg and Winnipegosis.

Over a dozen were taken on the Souris River, about 25 miles southwest of Brandon, between 1882 and 1899, by H. O. W. Boger. Three were killed at Brandon by C. C. Helliwell, who also saw two on the roof of the town station, one day about 1890. G. H. Meacham reports it rare at Shoal Lake, but one or two are seen there each year.

These with previous records completely spot the map of southwestern Manitoba. The species is doubtless found throughout the Alleghanian region of the Province.

ROSS GOOSE. *Chen rossii.* A specimen was taken on Red River near Winnipeg by Frank Marwood of that city, Sept. 20, 1902. It is now in the collection of Alexander Calder at Winnipeg.

BLUE GOOSE OR SILVER BRANT. *Chen cærulescens.* Noted as a rare migrant. Specimens taken at Winnipeg and Brandon. At Fort Chipewyan, Lake Athabaska, where 10,000 or more geese were killed each autumn, only one of this species was taken in several years. This is now in my collection.

LEAST BITTERN. *Ardetta exilis.* On Nov. 9, 1907, E. W. Darby showed me a Least Bittern, a young male, that was taken about Oct. 20, at Oak Point, Lake Manitoba, by J. C. McNab.

According to W. R. Hine a specimen was shot in the Bishop's Marsh near St. Boniface in 1885 by Wm. Gordon (of Winnipeg). C. C. Helliwell has seen one or two about Oak Lake, Manitoba. Frank M. Chapman saw one at Shoal Lake June, 1901.

AMERICAN EGRET. *Ardea egretta.* In the summer of 1888, David Armit, an officer of the Hudson's Bay Company stationed at Manitoba House, while out shooting at Duck Bay, Lake Winnipegosis, came across and collected a fine adult specimen of this bird in breeding plumage. He has most generously sent the prize to me; it is now No. 1776 of my collection.

LITTLE GREEN HERON. *Ardea virescens.* W. Shaw Cottingham reports having seen a Green Heron at Brandon. C. C. Helliwell, another (not seen by me).

LITTLE BROWN CRANE. *Grus canadensis.* In Oct., 1892, I examined an adult specimen in the possession of Miss Ada Jewell of Toronto, Ont. It was taken in Qu'Appelle Valley, on the western boundary of Manitoba, about 1890. Its dimensions were wing, 19 in.; tarsus, 6 in.; toe, 3¼ in.; beak, 3⅛ in.

Another is recorded (Man. Free Press, 5 March, 1904) from Portage la Prairie by Geo. E. Atkinson, May 6, 1898.

VIRGINIA RAIL. *Rallus virginianus.* The specimen in my collection was taken near Morden by D. Nicholson. I saw another in the collection of Geo. E. Atkinson of Portage la Prairie, and heard of another at Brandon. I have seen several taken near Winnipeg, Portage la Prairie; it is uncommon, but regular.

PASSENGER PIGEON. *Ectopistes migratorius.* The following are all the specimens I know of in Manitoba:— ♂ adult taken at Winnipeg in 1892, now in collection of Father Blain, St. Boniface College.

♂ adult taken at Winnipeg in 1894 by E. Wilson, now in possession of J. K. Hardy of St. Boniface.

♂ adult taken at Winnipegosis on 13 April, 1898, by J. J. G. Rosser.

The last year in which the Pigeons came to Manitoba in force was 1878. Next year they were comparatively scarce, and each year they have become more so. In the early 80's a few were seen each season. The above 3 specimens were the last reliable recorded. None have been seen since. It is interesting to note that 1878 was also the last year of the vast Buffalo herds on the Saskatchewan.

In my own collection are three specimens of Passenger Pigeon: — yg. ♂, taken at Carberry, Man., by Miller Christy, 30 Aug., 1883. Adult ♂ and ♀, taken at Fort Holmes, Ind. T., by C. Dewar, Jan., 1889.

SWALLOW-TAILED KITE. *Elanoides forficatus.* Geo. Grieve tells me that two have been taken at Winnipeg, one in 1889 and one in 1892. Neither seen by me.

COOPER HAWK. *Accipiter cooperi.* On May 10, 1907, at Edmonton, Alberta, Ed. A. Preble and myself saw at short range in the woods, a Cooper Hawk. It could have been collected, had we had a gun. (This is of course far beyond Manitoba, but an interesting find that should be recorded.)

KRIDER HAWK. *Buteo borealis krideri.* Three specimens of this beautiful hawk have been taken at Winnipeg: one shot at Rosenfeld by Charles Stewart, Sept. 20, 1905; two now in the collection of A. Calder.

BROAD-WINGED HAWK. *Buteo platypterus.* In my collection are two specimens, one collected near Winnipeg May 3, 1905, by Ashley Hine.

It is reported from various parts of the Province where well timbered, and is generally distributed though not abundant. A. Calder has a beautiful melanistic specimen killed at Winnipeg, April, 1907.

RED ROUGHLEG; GOPHER HAWK. *Archibuteo ferrugineus.* One in the collection of E. W. Darby was shot in 1895 at Neverville, fifteen miles southwest of Winnipeg, by Geo. Grieve. There is another specimen in the Manitoba Museum.

?GRAY GYRFALCON. *Falco rusticolus.* A specimen was killed near Winnipeg in the fall of 1904 and mounted by E. W. Darby for the Manitoba Museum.

RICHARDSON MERLIN. *Falco richardsoni.* A fine specimen was killed in Winnipeg during the summer of 1900 and brought in the flesh to A. Calder in whose collection it now is. It is said to be a regular summer resident along the Souris River.

BARRED OWL. *Syrnium varium.* In my collection is a Barred Owl taken at Winnipeg, March 30, 1906, by Harry Jones. E. W. Darby writes me that he had four taken at Winnipeg in 1906, and one early in April, 1908.

At Portage la Prairie I was shown a female taken by G. E. Atkinson May 19, 1899.

J. S. Charleson writes me that on May 9, 1901, while canoeing up the

Assiniboine near Winnipeg he saw a Barred Owl in a tree. Also he secured a specimen from Riding Mountain in January, 1905; it was killed by T. S. Kittson, and had in its stomach a flying squirrel.

WHITE HORNED OWL. *Bubo virginianus arcticus.* In A. Calder's collection are two superb specimens of this northern race. They were taken recently at Winnipeg.

BURROWING OWL. *Speotyto cunicularia hypogæa.* In August, 1899, at the taxidermist shop of G. E. Atkinson, Portage la Prairie, Man., I saw two Burrowing Owls that were taken by a farmer about four miles northwest of the town, on June 2, 1897. Two others were brought to the shop in May, 1899.

The specimen in my collection (No. 2594) is one of two taken at Morden, Man., by D. Nicholson, the taxidermist. He reports it rare but regular and increasing. Two others were taken in 1902.

E. W. Darby tells me that it is becoming quite common along the Pipestone and on the slope of Riding Mountain.

In 1904 J. P. Turner found a nest eight miles northwest of Winnipeg. The species utilizes the burrows of the Richardson ground squirrel for a nesting place.

?LEWIS WOODPECKER. *Asyndesmus torquatus.* My friend Geo. F. Guernsey, V. S., of Fort Qu' Appelle, Sask., one hundred miles west of Manitoba, writes me Aug. 3, 1898: "I shot a Woodpecker last fall that I would like you to identify. Size about as large as the Downy Woodpecker, black tail, wings, back of neck and head with green lustre; belly, breast and throat, rose color; very shy, I never saw one before."

RED-SHAFTED FLICKER. *Colaptes cafer collaris.* A full plumaged female in my collection (No. 2546) was shot near Winnipeg Sept. 30, 1904, by T. Dolphin.

CRESTED FLYCATCHER. *Myiarchus crinitus.* Now shown to be quite common along the Assiniboine. On Aug. 29, 1904, I got one at Lake Winnipegosis. This is the northernmost that I know of.

ENGLISH SPARROW. *Passer domesticus.* This species is now found in all the settled portions of Manitoba and at every farmhouse and in all the towns of the northwest as far as Athabaska Landing, Alberta, about N. Latitude 55°, W. Longitude 113°. It first appeared at Carberry in 1892 but was not found in numbers until 1894.

GRAY-CROWNED FINCH. *Leucosticte tephrocotis.* A specimen has reached me from Birtle where it was taken in January, 1891, by Geo. Copeland. It is there called 'Pink Snowbird.'

NELSON SPARROW. *Ammodramus caudacutus nelsoni.* In 1892 I found this sparrow abundant at Carberry and secured specimens, both breeding and migrant. In 1901 I found it common at Shoal Lake. In my collection are three specimens taken at Winnipeg. There can be little doubt that it is found throughout southwestern Manitoba and breeds wherever found.

INDIGO BUNTING. *Cyanospiza cyanea.* A specimen, a male adult

(No. 2531 Seton Coll.), was killed on June 3, 1893, by Wm. R. Hine near St. Boniface, between the Seine and Assiniboine Rivers, on the land between the Bishop's Marsh and the River Seine.

Another adult male was taken at Estevan, South Saskatchewan, by D. L. Thorpe 29 May, 1893. Estevan is eighty miles west of Manitoba.

In the collection of Father Blain, St. Boniface College, is an extraordinary specimen killed at Winnipeg. After careful examination E. A. Preble and I agree that it is probably a hybrid Indigo Bunting × Common Canary; may be escaped from captivity. With the general form and color of an Indigo Bunting female, it has some patches of yellow, and a white tail and wings.

DICKCISSEL OR BLACK-THROATED BUNTING. *Spiza americana.* August 10, 1899, I was shown an adult specimen of this bird, by G. E. Atkinson who shot it at Portage la Prairie, June 14, 1897. This was recorded in Man. Free Press, 5 March, 1904.

SCARLET TANAGER. *Piranga erythromelas.* I have seen two specimens that were taken at Winnipeg in 1892; one in the collection of Geo. Grieve, the other in the collection of W. R. Hine. He also took another and saw a third in 1888. It was about the end of May during a sudden cold spell; the third he saw on the bank of Red River in the city limits; he was within two yards of it for some time, but did not collect it.

SAW-WINGED SWALLOW. *Stelgidopteryx serripennis.* In the Manitoba Museum is a specimen of this swallow taken at Winnipeg by W. R. Hine.

ARCTIC BLUEBIRD. *Sialia arctica.* E. H. Patterson secured one of a pair that he found at a place two miles west of Brandon, Man., and sent the same to G. E. Atkinson, who recorded it in Man. Free Press, 5 March, 1904. To this Norman Criddle of Aweme, Man., adds (Ottawa Naturalist, July 1904, pp. 85, 86) that the species is by no means uncommon about the Carberry Sandhills, and that he has taken numerous nests there.

LAGOON IN THE COLORADO RIVER BOTTOMS NEAR NEEDLES, CALIFORNIA.

VEGETATION IN THE COLORADO RIVER BOTTOMS NEAR NEEDLES, CALIFORNIA.

BIRDS OF THE REGION ABOUT NEEDLES, CALIFORNIA.

BY N. HOLLISTER.

Plate VIII.

IN THE spring of 1905, while engaged in field work for the United States Biological Survey, I spent some weeks in the vicinity of the Colorado River near the point where California, Nevada, and Arizona meet. The region is interesting from an ornithological point of view as little work has been done there since the days when Fort Mohave was a military post.[1]

Arriving in the region from the west I spent from April 10 to 16 at Goffs (Blake postoffice), California, a station on the Santa Fé railroad between Bagdad and Needles and about twenty-five miles west of the Colorado River. The territory surrounding Goffs is extreme desert, a series of bare rocky hills and sandy flats with no trees whatever except a few scrubby tree yuccas about the bases of the hills. The flat districts are partly covered with a growth of the creosote bush (*Covillea tridentata*) and other desert shrubs, which are especially common and of greater size along the numerous dry washes; it was here that most of the birds were found.

On April 16 I moved east to Needles, a small town on the California bank of the Colorado River, where collecting was carried on until May 1. Two days were then spent on the opposite side in Mohave County, Arizona. On May 6, in company with a Mohave Indian, I went into camp in the low bottomlands of the California side ten miles above Needles. May 17 we moved camp to Twin Lakes, half a mile below the California-Nevada line, from which point excursions were made up the west bank of the river into southern Nevada to extend the known ranges of various species into that State. On the 25th I moved across the river to

[1] In the summer of 1902 Mr. F. Stephens collected in the Providence Mountains, about Needles, and at other points along the river, also in the interests of the Biological Survey, and published the results of his bird work, an interesting and valuable list, in 'The Condor,' Vol. V, Nos. 3 and 4, 1903.

Fort Mohave, Arizona, and worked there until May 29, when I returned to Needles.

The land bordering the Colorado River from the Santa Fé railroad bridge north to beyond the Nevada line is chiefly bottomland over which the river rises each spring. This bottomland varies from a narrow strip along the banks to wide areas several miles across. Just at and below the Nevada line are the wide bottoms of the California side, though in a great bend of the river below Needles are extensive flats. At the edge of the bottoms rise low mesas extending back from the river and soon developing into hills of considerable size which stretch back to the mountains bordering the valley. The mesa and hills are desert, covered for the most part with a sparse growth of creosote bushes and rabbit brush. The bottomland is thickly covered with arrow-weed (*Pluchea sericea*), willow, mesquite, and screw-bean with fine groves and forests of cottonwood. Here and there throughout the bottoms are ponds and lakes, some with a growth of tules about their shores.

On May 31 I left the river for Ivanpah Valley, some fifty miles northwest on the California-Nevada line, where I collected until June 6. Ivanpah Valley is a large basin, a flat desert tract nearly surrounded by hills and mountains. The elevation of the floor of the valley at Ivanpah station is about 3500 feet. At the northern end of the valley, some six or eight miles from the station, is a large dry lake bed, and the entire valley is typical desert with little water. From the dry washes in the center of the valley there is a gradual rise in each direction to the bases of the hills and mountains. Creosote bushes, grease-brush, and cactuses form the conspicuous vegetation of the valley proper and on the higher ground bordering the hills are a few tree yuccas. From June 6 to 12 was spent with a pack outfit on what is locally known as New York Mountain at the southern end of the valley. It is the highest point on the eastern end of the Providence Range, just well within the State of California, and was an agreeable change after the extreme heat of the arid desert of Ivanpah Valley. On the hills surrounding the mountain junipers appear and become abundant and larger higher up. About some small springs in the lower foothills are a few willows and over the whole mountain are patches of piñon (*Pinus*

monophylla) and a small species of live oak. In the gulches of the mountain side are several winter springs, still running sparingly at this date. The mountain is extremely rough and rocky and trails for pack animals are few. The formation is chiefly granite and immense boulders lie piled one upon another over most of the surface leaving little chance for the smaller plants. The highest ridge is said to be about 7000 feet in altitude, above which extend several barren rocky peaks some distance higher.

The bulk of the bird list refers to California territory; indeed, only two species — the Vireo and the Verdin — were not taken or seen on California soil, though both doubtless occur as plentifully on the west bank as on the east. Several species found to be common in California and southern Nevada in the immediate vicinity of the Colorado River have not previously been considered as regular summer residents in the vicinity, and I am not aware that the Dwarf Cowbird has been specifically reported from California or Nevada. Thanks are due to Dr. C. Hart Merriam, Chief of the Biological Survey, for permission to publish these notes.

Larus delawarensis. RING-BILLED GULL.— I examined the head, wings, and tail of a gull of this species which had been shot at Ivanpah station a few weeks previous to my visit. It was a single bird and when killed was circling over the water tank at the station.

Pelecanus erythrorhynchos. WHITE PELICAN.— Reported as sometimes common on the Colorado River at Needles during migrations. The Mohave Indians call the pelican Yak-wĭn-ye-hool′-yah.

Mergus serrator. RED-BREASTED MERGANSER.— The sun-dried remains of a full plumaged male found on the desert near the center of Ivanpah Valley. The bird probably perished from want of water.

Anas platyrhynchos. MALLARD.— Said by the Mohave Indians to be common, with other ducks in the winter, on the Colorado River. Their name for the Mallard is Ah-nah-mō′.

Plegadis guarauna. WHITE-FACED GLOSSY IBIS.— A flock of eight seen flying low over the Colorado River at Needles, May 2.

Ardea herodias treganzai. TREGANZA BLUE HERON.— In the hotel at Goffs is a mounted Blue Heron which was killed some years ago on the dry desert near the station. On the Colorado River several were seen about the little lakes in the bottoms above Needles.

Nycticorax nycticorax nævius. BLACK-CROWNED NIGHT HERON.— At our camp above Needles in the Colorado River bottoms we frequently heard the Night Herons as they passed over in the evening.

Himantopus mexicanus. BLACK-NECKED STILT.— I shot a single bird

at a small pond in the Colorado River bottoms just below the Nevada line in California, May 9. My Mohave companion called it MĪn-sah-patch'-patch.

Actitis macularia. SPOTTED SANDPIPER.— Common about the little ponds in the river bottoms near Needles.

Oxyechus vociferus. KILLDEER.— Fairly common at Needles. The Mohave name for this bird is NĪn-tee-rĭs-tah-rees'-a.

Lophortyx gambeli. GAMBEL QUAIL.— Abundant in the Colorado River bottoms where the calls of the cocks could be heard all through the day. An almost perfect egg was taken from a female shot April 22, and tiny young were seen the middle of May. The favorite retreat of this quail seems to be in the dense thickets of arrow-weed in the low land and comparatively few were found on the neighboring mesa. The Mohave Indians call it Ah'-ha-mah.

Zenaidura carolinensis. MOURNING DOVE.— Becoming more common each day of my stay at Goffs and later found in abundance in the river bottoms near Needles, where many nests were seen the first half of May. Also fairly common in Ivanpah Valley and on New York Mountain. Mohave name, Ōs-kee'-vah.

Cathartes aura septentrionalis. TURKEY BUZZARD.— One seen high over head at Goffs, April 16. Common along the Colorado River and seen daily in Ivanpah Valley. On New York Mountain the buzzards were common, gathering from the surrounding deserts in the evening to roost on the high rocky points. The Mohave Indian name is Ah-say'.

Accipiter cooperi. COOPER HAWK.— One female collected in the Colorado River bottoms above Needles, May 19. The Mohaves called the bird Sū-quĭl'-ă-kī-tī.

Buteo borealis calurus. WESTERN RED-TAIL.— Several seen along the Colorado River. Mohave name, Oo'-mah-thay.

Falco sparverius phalœna. DESERT SPARROW HAWK.— A single bird seen along the telegraph line near Goffs, April 14.

Pandion haliaëtus carolinensis. OSPREY.— Frequently seen along the Colorado River. The Mohaves call the fish hawk Ah-spah-a-chee'-cū-thah.

Geococcyx californianus. ROAD-RUNNER.— Common in the timbered bottomland of the Colorado River and the brushy side draws, where several were caught in meat-baited traps set for carnivorous mammals. The stomachs of two examined were filled with large green grasshoppers. One seen in Ivanpah Valley near the base of New York Mountain. Mohave name, Tile'-paw.

Ceryle alcyon. BELTED KINGFISHER.— Several about the ponds in the Colorado River bottoms. Mohave name, Săk-wee-thay'.

Dryobates scalaris bairdi. TEXAS WOODPECKER.— Common in the river bottom about Needles where several specimens were collected. The Mohave name for woodpeckers in general is Iss-own'-ă.

Centurus uropygialis. GILA WOODPECKER.— I found this bird common in the timbered bottomlands of the Colorado River from Needles north

beyond the line some miles into Nevada. Specimens were secured in California ten miles north of Needles, where the loud calls and drummings were heard from morning until night. One nest was in a small blasted stub standing some distance from shore in a large lagoon.

Phalænoptilus nuttalli. POOR-WILL.— At Goffs one was heard calling on the evenings of April 15 and 16, and while camped on the Colorado River near the Nevada-California line we heard one each night on the higher mesa to the westward. Mohave name, Tō-lŏwk.′

Chordeiles acutipennis texensis. TEXAS NIGHTHAWK.— Very abundant along the Colorado River. The nighthawks here spend the day in the thickets of arrow-weed from which I frequently flushed them. At night they swarmed about the town of Needles, especially at the station, where the insects were no doubt attracted by the lights. The switching engine seemed not to bother the birds in the least and I often saw them dart in and out of the thick black smoke close to a puffing freight. On the edge of the mesa at Fort Mohave one evening, just before the time for the nighthawk's flight, I saw and heard one give the peculiar chuckling call, which was accompanied by a most curious bobbing of the bird's head and body. Mohave Indian name, Oh-roo′.

Aëronautes melanoleucus. WHITE-THROATED SWIFT.— Several times when I climbed to near the highest rocky point on New York Mountain I saw four of these birds swiftly flying around the peaks.

Calypte costæ. COSTA HUMMINGBIRD.— Hummers were common in the neighborhood of the Colorado River and about the watered gulches on New York Mountain. The only specimen taken was shot high up on the mountain and proved to be of this species. The Mohaves call all the hummingbirds Yĭn′-yĭn-ă.

Tyrannus verticalis. ARKANSAS KINGBIRD.— Abundant along the Colorado River. A nest which I examined at Needles on May 18 was placed on the platform of a steel windmill tower in town and contained three eggs. Specimens collected. Mohave name, Sah-kahl-cheer′-kah.

Myiarchus cinerascens. ASH-THROATED FLYCATCHER.— Common at Needles and several seen on New York Mountain, at both of which places specimens were secured.

Sayornis saya. SAY PHŒBE.— A single bird seen at Goffs on April 16.

Empidonax griseus. GRAY FLYCATCHER.— One taken at Goffs, April 15. It was a single bird and was feeding among the higher creosote bushes along a dry wash.

Pyrocephalus rubineus mexicanus. VERMILLION FLYCATCHER.— Three specimens secured on the California side of the Colorado River ten miles above Needles where the bird was fairly common about the shores of lagoons. Several were seen also in Nevada a short distance above the boundary monument. Unlike most flycatchers this species rarely returned to the old perch after darting out to catch an insect, but usually flew on and on, lighting on a new bush after each dash. A nearly full grown young was taken May 20.

Otocoris alpestris pallida. SONORAN HORNED LARK.— Fairly common at Goffs. A few breeding in Ivanpah Valley where a family of nearly grown young was seen. Specimens collected at both places.

Aphelocoma woodhousei. WOODHOUSE JAY.— Four or five seen well up among the junipers and piñons on New York Mountain.

Molothrus ater obscurus. DWARF COWBIRD.— Abundant in the Colorado River bottoms during my entire stay. Specimens were taken on the California side above Needles, and all the evidence showed the bird to be a common summer resident. Seen above the boundary monument in Nevada. Mohave Indian name, I-thick'-wah.

Agelaius phœniceus sonoriensis. SONORAN RED-WING.— A few male red-wings were seen flying high over our camp on the Colorado River above Needles and were probably breeding somewhere in the vicinity. Unfortunately no lighting place could be located and no specimens were taken so the subspecific determination is a matter of doubt. Possibly the form is *A. p. neutralis*. Mohave Indian name, Qual-e-täk'-a.

Icterus bullocki. BULLOCK ORIOLE.— A common breeding species in the river bottoms near Needles. Four specimens. Mohave name, Sŭck-ă-quah'-thah.

Euphagus cyanocephalus. BREWER BLACKBIRD.— During the early part of my stay at Needles a few were seen. Later all seemed to have left the region. Mohave name, Po-cah-bŏs'-oh.

Carpodacus mexicanus frontalis. HOUSE FINCH.— A few seen at Needles and on New York Mountain.

Astragalinus psaltria hesperophilus. GREEN-BACKED GOLDFINCH.— A few visited the small cottonwoods planted about the station at Goffs, April 14.

Pocœcetes gramineus confinis. WESTERN VESPER SPARROW.— Two taken and others noted on the desert at Goffs, April 12 and 13.

Zonotrichia leucophrys gambeli. INTERMEDIATE SPARROW.— Common in small scattering flocks at Goffs, April 9 to 16. Two specimens secured.

Spizella breweri. BREWER SPARROW.— Very abundant at Goffs. In full song and early in the morning the desert fairly rang with their music. None noted along the Colorado River but later in Ivanpah Valley a few were seen and one was collected June 2.

Spizella atrigularis. BLACK-CHINNED SPARROW.— Fairly common on New York Mountain. Full fledged young were taken June 7.

Junco hyemalis thurberi. THURBER JUNCO.— One taken and others seen along a dry wash far out on the barren desert at Goffs, April 13.

Amphispiza bilineata deserticola. DESERT SPARROW.— Fairly common at Goffs and in Ivanpah Valley.

Melospiza melodia fallax. DESERT SONG SPARROW.— Fairly common about some of the small bottomland ponds on the California side above Needles. On May 20 a specimen in juvenile plumage was secured and several families of young were seen.

Pipilo aberti. ABERT TOWHEE.— Abundant in the mesquite and arrow-

weed thickets of the Colorado River. Breeding on the California side about Needles where many full grown young were seen early in May. The Mohaves call this bird Cŭm-tŏs′-kah.

Guiraca cærulea lazula. WESTERN BLUE GROSBEAK.— Common about openings along the river above Needles where four specimens were collected. Mohave name, Sŭck-ă-teeth′-a.

Piranga rubra cooperi. COOPER TANAGER.— Common in the large cottonwoods from Needles northward along the California side of the river into Nevada. Four specimens collected ten miles above Needles. Mohave name, Mĭn-sah′-ŏw.

Tachycineta thalassina lepida. NORTHERN VIOLET-GREEN SWALLOW.— A few seen about Needles during the early part of my stay.

Stelgidopteryx serripennis. ROUGH-WINGED SWALLOW. — Abundant along the river above Needles. Called by the Mohave Indians Hŏm-kāy′.

Lanius ludovicianus excubitorides. WHITE-RUMPED SHRIKE.— One pair and a family of young recently from the nest were secured at Goffs, April 11. One seen on the mesa near Needles.

Vireo belli arizonæ. ARIZONA VIREO.— A single female taken at Fort Mohave, Arizona, May 25.

Dendroica auduboni. AUDUBON WARBLER.— Several seen at Goffs, April 10 to 15.

Geothlypis trichas occidentalis. WESTERN YELLOW-THROAT.— One seen in a bottomland thicket near Needles.

Icteria virens longicauda. LONG-TAILED CHAT.— Fairly common along the Colorado River where it was evidently breeding.

Oroscoptes montanus. SAGE THRASHER.— Common and in full song at Goffs, April 10 to 15.

Mimus polyglottos leucopterus. WESTERN MOCKINGBIRD.— Common at Goffs. One seen at Needles. In full song. Mohave name, Sō-kōth-ŏl′-yah.

Toxostoma lecontei. LECONTE THRASHER.— Two seen among the larger creosote bushes in Ivanpah Valley. I found it exceedingly difficult to shoot one as they ran and flew low over the ground ahead of me at a greater speed than I could travel, and it was only by persistent stalking that a specimen was secured.

Salpinctes obsoletus. ROCK WREN.— Common on New York Mountain.

Catherpes mexicanus conspersus. CAÑON WREN.— Common high up on New York Mountain.

Bæolophus inornatus griseus. GRAY TITMOUSE.— Fairly common among the junipers on New York Mountain. Specimen collected.

Psaltriparus plumbeus. LEAD-COLORED BUSH-TIT.— Several bands of these tits were seen among the junipers on New York Mountain. Usually in parties of eight or ten and passed rapidly along, feeding by the way. Two specimens.

Auriparus flaviceps. VERDIN.— One seen in a thicket near Fort Mohave, May 26.

Regulus calendula. RUBY-CROWNED KINGLET.— A few noted in the higher bushes along washes on the desert at Goffs, April 10 to 15.

Polioptila cærulea obscura. WESTERN GNATCATCHER.— Fairly common on New York Mountain, where two were collected June 7.

Polioptila plumbea. PLUMBEOUS GNATCATCHER.— Several seen and one secured at Goffs, April 11. Fairly common among the mesquites and creosote bushes on the lower mesas back from the river above Needles.

THE BIRDS OF THE ROSEBUD INDIAN RESERVATION, SOUTH DAKOTA.

BY ALBERT B. REAGAN.[1]

WHILE U. S. Indian teacher of the White Thunder Day School of the Rosebud Indian Reservation in 1904, I took notes on the occurrence and habits of the birds that chanced to visit the region. These I give below.

1. **Gavia imber.** LOON.— Migratory; rare.

2. **Larus delawarensis.** RING-BILLED GULL.— I saw but one individual of this species.

3. **Hydrochelidon nigra surinamensis.** BLACK TERN.— A male and female of this species were killed by an Indian of the camp who brought them to me for identification, remarking that they were sea birds.

4. **Pelecanus erythrorhynchos.** AMERICAN WHITE PELICAN.— An Indian of the camp killed a male pelican, skinned it and brought me the skin. I did not see the live bird.

The species of Anatidæ, given below, commenced appearing March 2 and commenced to go south August 21. None made residence in the region. But few crossed the area in the spring, they going further to the east. More passed in their southern journey. The journey south was much prolonged on account of the warm fall, the birds seeming in no hurry to leave.

Unluckily there was but little water in the vicinity of the author's location; consequently he had the opportunity of obtaining but a few specimens for identification.

5. **Anas boschas.** MALLARD.— Abundant in migration.

6. **Anas obscura.** BLACK DUCK.— I killed the only specimen I saw of this species.

[1] Supervising warden of the Olympic Bird Reserves, Washington.

7. **Nettion carolinensis**. GREEN-WINGED TEAL.

8. **Querquedula discors**. BLUE-WINGED TEAL.— This species, together with *N. carolinensis*, constituted the majority of the ducks that passed over the region within the year.

9. **Querquedula cyanoptera**. CINNAMON TEAL.— Rare in migration.

10. **Spatula clypeata**. SHOVELLER.— A common migrant.

11. **Dafila acuta**. PINTAIL.— A common migrant.

12. **Bucephala albeola**. BUTTER-BALL.— Not common in migration.

13. **Aythya vallisneria**. CANVAS-BACK.— Migratory; common.

14. **Aythya affinis**. LESSER SCAUP DUCK.— Not common in migration.

15. **Aythya collaris**. RING-NECKED DUCK.— I saw but one specimen of this species. This I flushed at the edge of the school dam.

16. **Chen hyperborea**. LESSER SNOW GOOSE.— A common migrant.

17. **Branta canadensis**. CANADA GOOSE.— Common.

18. **Branta canadensis hutchinsii**. HUTCHINS'S GOOSE.— But one flock of these geese were seen.

19. **Branta bernicla**. BRANT.— Rather common in migration.

20. **Olor columbianus**. WHISTLING SWAN.— A flock of these swans was reported on White River.

21. **Fulica americana**. AMERICAN COOT.— Very common.

22. **Botaurus lentiginosus**. AMERICAN BITTERN.— I flushed this bird several times about the school pond, but I was unable to find a nest.

23. **Ardetta exilis**. LEAST BITTERN.— Not common.

24. **Grus americana**. WHOOPING CRANE.— Migratory; rare.

25. **Grus canadensis**. LITTLE BROWN CRANE.— Common in migration.

26. **Grus mexicana**. SANDHILL CRANE.— Migratory; common.

These cranes, like the ducks, commenced crossing the region in the early days of March and commenced their southern trip across the same in the closing days of August; but unlike the ducks, about as many crossed the region in the spring as in the fall. But few of these birds alighted. Those that did seemed to prefer the high points to the water courses and low ground, the high points being the uninhabited areas.

27. **Rallus elegans**. KING RAIL.— I flushed this bird several times, but looked arduously for its nest without success.

28. **Rallus virginianus**. VIRGINIA RAIL.— This bird is a common migrant, but evidence that it is a summer resident is wanting.

29. **Porzana carolina**. SORA.— A rare summer resident.

All of the species of Scolopacidæ, given below, are common migrants or rare residents of the region. The Bartramian Sandpiper nests in the upland region.

30. **Tringa maculata**. PECTORAL SANDPIPER.

31. **Totanus melanoleucus**. YELLOW-LEGS.

32. **Totanus flavipes**. LESSER YELLOW-LEGS.

33. **Helodromas solitarius**. SOLITARY SANDPIPER.

34. **Bartramia longicauda**. BARTRAMIAN SANDPIPER.

35. **Actitis macularis**. SPOTTED SANDPIPER.

36. **Numenius longirostris**. LONG-BILLED CURLEW.

37. **Numenius borealis**. ESKIMO CURLEW.— The last two species were well represented on the Butte Creek flats in June.

38. **Ægialitis vocifera**. KILLDEER.— A common summer resident.

39. **Colinus virginianus**. BOB-WHITE.— This bird is a rare resident of the reservation. I flushed but two on the reserve within the year. They, however, are an abundant resident over the line in the farming districts of Nebraska.

40. **Bonasa umbellus**. RUFFED GROUSE.— A rare resident.

41. **Tympanuchus americanus**. PRAIRIE HEN.— This bird is a very common resident of the uplands, but is a rare resident in the valleys. It prefers to keep shy of the settlements.

42. **Pediœcetes phasianellus campestris**. PRAIRIE SHARP-TAILED GROUSE.— A very common resident.

42. **Zenaidura macroura**. MOURNING DOVE.— The doves are common throughout the reservation, but most numerous in the White River valley region. Here droves of doves fly about all day long in the fall.

43. **Accipiter cooperi**. COOPER'S HAWK.— Resident; common.

44. **Buteo borealis**. RED-TAILED HAWK.— Resident; common.

45. **Buteo lineatus**. RED-SHOULDERED HAWK.— Resident; common.

In the fall the hawks of each of the three species mentioned above collect in flocks and fly about the country in that manner for a considerable time before migrating. There are none, or few hawks of any kind, in the region in the winter season.

46. **Aquila chrysaëtos**. GOLDEN EAGLE.— This bird is common throughout the year, but more common in winter. It is from the feathers of this eagle and those of the Bald Eagle, next below, that the Sioux make their war-bonnets and other feathered regalia and paraphernalia. It takes a good horse to buy the feathers of one eagle.

47. **Haliæetus leucocephalus**. BALD EAGLE.— Common. This bird, with the Golden Eagle, feeds principally on prairie-dogs, hence they are a benefit to the region.

48. **Falco rusticolus**. GRAY GYRFALCON.— But one individual of this species was seen by the author within the year.

49. **Falco mexicanus**. PRAIRIE FALCON.— Rare.

50. **Falco columbarius**. PIGEON HAWK.— Not common.

51. **Falco sparverius**. AMERICAN SPARROW HAWK.— Resident; abundant.

52. **Syrnium varium**. BARRED OWL.— Common.

53. **Megascops asio**. SCREECH OWL.— This owl could be heard every night throughout the summer season. Its favorite haunts seemed to be the timbered region along the creeks. When putting in the school fence the children ran on to two of these birds and immediately advised me of their presence. Our work was done for that day. Not a child would proceed with the work. I asked them why they would not work, and they said: "Me no go where owl be, owl [image of] death." I learned after-

wards that the Sioux, like most Indians, consider the owl the evil spirit death. And that when it screeches or hoots it is calling some one to die.[1]

54. **Bubo virginianus**. GREAT HORNED OWL.— When doing research work in geology in the Robinson Bad Lands in July I came on to two of these birds sitting on a branch of a leaning red cedar back in a narrow deep ravine. The birds did not see me till I was right under them. I tried to get them for specimens for my collection, but as I did not have my gun with me they escaped. I searched for a nest, but was unable to find any. These were the only birds of the species seen.

55. **Speotyto cunicularia hypogæa**. BURROWING OWL.— These birds are abundant in the prairie dog town districts. Peculiar for an owl, on hot days they come out of their burrows and sun themselves, sitting usually on fence posts if there are any near their places of residence.

56. **Dryobates villosus**. HAIRY WOODPECKER.— This bird is a common resident both in summer and winter. Both in the fall and in the spring they are usually found in company with the Long-tailed Chickadee.

57. **Dryobates pubescens**. DOWNY WOODPECKER.— A common resident.

58. **Sphyrapicus varius**. YELLOW-BELLIED SAPSUCKER.— Rare.

59. **Melanerpes erythrocephalus**. RED-HEADED WOODPECKER.— Rare.

60. **Centurus carolinus**. RED-BELLIED WOODPECKER.— Common.

61. **Colaptes auratus luteus**. FLICKER.— Very common.

62. **Chordeiles virginianus henryi**. WESTERN NIGHTHAWK.— This bird is one of the most common large birds of the country. I found a nest in the potato patch. The female was on it when I found it. She dragged herself over the ground, fluttered and squawked. At length I scared her so that she flew. I then found that she had been dragging her eggs under her as she drew herself over the ground. There was nothing, however, that could be called a nest except a little hollowed out place. There was neither stick, straw, nor feathers to mark the place. The eggs were two in number and were of a dirty mud color.

63. **Trochilus colubris**. RUBY-THROATED HUMMINGBIRD.— Common in summer.

64. **Tyrannus tyrannus**. KINGBIRD.— Summer resident; abundant.

65. **Sayornis phœbe**. PHŒBE.— I saw but few of these birds, and no nests at all.

66. **Contopus virens**. WOOD PEWEE.— A common summer resident.

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[1] This Sioux belief calls to my mind an incident that occurred when I was among the Apaches of Arizona. One morning an Indian came to my house and with great anxiety said: "Me family all die." I asked if they were sick, supposing that possibly they had the smallpox, as that disease usually proves fatal to an Indian. "No," he remarked, "but an owl lit on me tepee last night and hooted. Me away; me family in tepee. Me family all die before the leaves come again." And his family did die within the year, his wife and three children died with consumption. But it was not because the owl called them that they died. They killed themselves drinking Indian whiskey and exposing themselves while they were under its influence. But the Indian to this day will tell you that the owl took them.

67. **Contopus richardsonii?** WESTERN WOOD PEWEE.— A rare summer resident.

68. **Pica pica hudsonia.** AMERICAN MAGPIE.— This bird is a resident throughout the year, but more numerous in winter.

There were so many of these birds about the school in the spring that it became necessary to kill some of them, because they were making themselves such a pest. I had killed only a few when all disappeared. I thought that they had migrated from the region, but later I found them nesting in White River valley. They knew that they were being killed, so left the immediate vicinity of the school.

These birds alight on the backs of horses and cattle and peck holes through the hide and eat the flesh out. Still worse, if a horse has a sore back made by saddle or harness they will perch themselves on him and eat the flesh out till he dies. If the poor creature tries to switch or rub off the pesterer, the bird simply hops to the other side of the animal and begins to peck there. This is kept up till the tortured animal gives up in despair. The bird then eats his fill. The work of these birds, however, is not always a detriment. I have seen them pick grubs from cows' backs by the hour.

69. **Cyanocitta cristata.** BLUE JAY.— A common resident.

70. **Corvus brachyrhynchos.** AMERICAN CROW.— An abundant resident.

71. **Agelaius phœniceus phœniceus.** RED-WINGED BLACKBIRD.— These birds are very abundant in migration, but in residence rare; I found only one nest.

72. **Agelaius phœniceus fortis.** NORTHERN RED-WING.— Common in migration.

73. **Xanthocephalus xanthocephalus.** YELLOW-HEADED BLACKBIRD.— This bird is an abundant resident as well as a migrant.

74. **Molothrus ater.** COWBIRD.— An abundant summer resident.

75. **Sturnella magna magna.** MEADOWLARK.— An occasional resident.

76. **Sturnella magna neglecta.** WESTERN MEADOWLARK.— This bird is an abundant resident. While it looks like *S. magna magna*, it is very different in action. Its song is *tung-tung-tungah-til'-lah-tung*, its warning call *tuck*, its warning whistle *whah-o*, its sympathetic call *tyar*. It flies by a trembling flutter of the wings.

77. **Icterus spurius.** ORCHARD ORIOLE.— Resident in summer.

78. **Icterus galbula.** BALTIMORE ORIOLE.— A summer resident.

79. **Quiscalus quiscala æneus.** BRONZED GRACKLE.— Abundant in summer.

80. **Passerculus sandwichensis alaudinus.** WESTERN SAVANNA SPARROW.— Very common.

81. **Coturniculus savannarum passerinus.** GRASSHOPPER SPARROW.

82. **Spizella socialis.** CHIPPING SPARROW.

83. **Spizella pusilla arenacea.** WESTERN FIELD SPARROW.— Common summer resident.

84. **Junco aikeni.** WHITE-WINGED JUNCO.— A rare winter visitor

85. **Junco hyemalis.** SLATE-COLORED JUNCO.— Common in winter.

86. **Junco hyemalis shufeldti.** SHUFELDT'S JUNCO.— Common in winter.

87. **Calamospiza melanocorys.** LARK BUNTING.— These birds are an abundant resident in summer. Both in fall and spring they fly around in flocks like blackbirds. In the summer they are seen in pairs only.

88. **Passer domesticus.** ENGLISH SPARROW.— These birds are just beginning to enter the region. They are driving the Bluebirds out of the country wherever they appear.

89. **Piranga erythromelas.** SCARLET TANAGER.— Common in summer.

90. **Piranga rubra.** SUMMER TANAGER.— Summer resident; rare.

91. **Petrochelidon lunifrons.** CLIFF SWALLOW.— Summer resident; common.

92. **Hirundo erythrogastra.** BARN SWALLOW.— These birds are an abundant summer resident in the vicinity of the Ring Thunder Day School; I saw but few of them at any other place.

93. **Riparia riparia.** BANK SWALLOW.— Very common along the banks of White River.

94. **Lanius borealis.** NORTHERN SHRIKE.— Common in winter.

95. **Lanius ludovicianus excubitorides.** WHITE-RUMPED SHRIKE.— Common in summer.

96. **Dendroica æstiva.** YELLOW WARBLER.— An abundant summer resident.

97. **Seiurus motacilla.** LOUISIANA WATER-THRUSH.— Rare.

98. **Setophaga ruticilla.** AMERICAN REDSTART.— Common in summer.

99. **Salpinctus obsoletus.** ROCK WREN.— Common in broken districts.

100. **Toxostoma rufus.** BROWN THRASHER.— Common in summer.

101. **Troglodytes aëdon aztecus.** WESTERN HOUSE WREN.— Rare.

102. **Parus atricapillus.** CHICKADEE.

103. **Parus atricapillus septentrionalis.** LONG-TAILED CHICKADEE.— The two species of chickadees are very common, the latter being the most abundant. They are found most usually in company with the Hairy Woodpeckers. They are very busy birds and are always keeping up their peculiar chatter. They seem to prefer the elm trees to all others when looking for food.

104. **Hylocichla mustelina.** WOOD THRUSH.— Rare.

105. **Hylocichla guttata pallasii.** HERMIT THRUSH.— This bird is very rare; I found but one nest.

106. **Merula migratoria.** AMERICAN ROBIN.— The Robin, though one of the first migrant birds to appear in the spring and the last to leave (the school children captured one December 20), is very rare.

107. **Merula migratoria propinqua.** WESTERN ROBIN.— Rare.

108. **Sialia sialis.** BLUEBIRD.— Common.

CHANGES OF PLUMAGE IN BUTEO SWAINSONI.

BY E. S. CAMERON.

MY attention has just been drawn to some observations of Mr. P. B. Peabody on the above subject in 'The Condor' for November-December, 1907. I am sorry to refer to them at such a late date, but the fact is I have only recently seen this number of the magazine through the courtesy of one of its editors. Mr. Peabody concludes an interesting article on Prairie Falcons with the following remarks: "As for albinism, however, the writer is inclined to believe Mr. Cameron in error (see 'The Auk,' July, 1907) in believing that the Swainson Hawk normally blanches with age. I have never seen but one such (in Kansas, May, 1907); yet I have seen many melanists. Moreover, Mr. Cameron has seen hundreds of normals to my one; yet he, by his own admission (*loc. cit.*), has never seen but two blanched Swainson Hawks!" This is entirely to misquote my statement and misinterpret my meaning. What I really wrote in 'The Auk' (Vol. XXIV, p. 262) was as follows: "In color, as far as could be determined, these buzzards exhibited every shade of brown, while some inclined to a more chestnut hue. Others again appeared black, or almost black, showing the melanistic form, and a very few individuals were a uniform lavender, or bluish ash, like the male Marsh Hawk (*Circus hudsonius*). I have never obtained but two birds in this rare dress, but I feel satisfied it is the one ultimately assumed by the adult male, which through a long succession of browns moults into a mature plumage of lavender with white throat spot. Of this cinereous phase I can find no reference in ornithological works, where the old males are invariably, but I believe quite erroneously, described as brown. The immature birds, both male and female of the same age, also exhibit endless difference in coloration, and the attempt to trace their progress to maturity has perplexed even so eminent an authority as Dr. R. Bowdler Sharpe who states (*in lit.*): 'The changes of plumage in these buzzards are terribly difficult to follow.'"

As I am not a collector, either of skins or eggs, I scarcely ever shoot a bird, least of all, in the breeding season. When I wrote "I have never obtained but two birds," etc., I meant that I had

only shot two specimens of this type, certainly not that I had only seen two, as Mr. Peabody phrases it, and in the line immediately above I distinctly state that I did see a very few individuals of a uniform lavender on the particular occasion referred to. At the same time I admit that the expression "have never obtained" is open to misconstruction, and am glad to have this opportunity of explaining it. During my nineteen years' residence here, I have seen (as Mr. Peabody says), many hundreds of these hawks,[1] and amongst them not two but a considerable number of bluish ash or lavender examples. I have no doubt that I could easily have obtained a dozen skins of the latter, and also the complete series necessary to show the progress to maturity from the brown and chestnut fledgling to the adult lavender colored male.

This color phase has no more connection with albinism than has the cinereous shade of the adult Marsh Hawk, and is accomplished by a normal succession of moults. In my opinion *B. swainsoni* requires four or five years to assume the full adult dress, as is the case with the Golden Eagle (*Aquila chrysaëtos*) and others of the family. I have never myself seen an albino example of Swainson's Hawk.

Some of these hawks breed regularly in my vicinity every year. Two pairs nested here this summer. In June, 1893, a pair made their nest in a white ash tree, in the fenced pasture adjoining my ranch. Both of these were shot. The male was of the light cinereous form with white throat spot, identical with the one obtained in April, 1890, and now in the British Museum. In 1899, I had three nests under constant observation and made voluminous notes. The three cock birds were all quite different, but more or less of a brown coloration, and owing to my intervention none of the hawks were molested. One of these males was as described by Coues,— with the primaries and tail feathers "strongly slate-colored," the whole of the underparts white, streaked with chestnut, and the white throat "immaculate." I have supposed this plumage to be intermediate between the extreme dark brown and bluish gray forms. Dr. Coues, who examined forty specimens, had obviously never come across the light, slate-colored birds. He

[1] On a rough estimate I must have seen about 2500 of this species at the migration periods.

might easily have missed them for he writes: "I took no specimens in the melanistic state of plumage in which the bird has been described as another supposed species (*B. insignatus*); and only saw one in which the entire underparts looked as dark, when the bird was sailing over me, as the pectoral band of the adult female is." [1] These melanistic birds are by no means uncommon. In the great irruption of April, 1890, I saw numbers of them. The above mentioned writer also states (*op. cit.*): "In both sexes, and at all ages the eye is brown, but of varying shade. I have seen no approach to a yellow iris." This is true of all the brown males, but the bluish ash specimens, to which I refer, have brownish yellow irides, with orange legs, feet and cere. The females and immature birds on the other hand, have pale hazel irides, the legs, feet, and cere being chrome yellow. The eyes are blue gray in the newly fledged young, which color probably changes before the end of the year.

Among the twelve examples shot in April, 1890, out of one flock eleven were females and immature birds while the 12th, of the lavender type, appeared to be an adult male. As previously stated six of the skins were sent to Dr. P. L. Sclater who wrote (referring to himself and Dr. R. Bowdler Sharpe): "We have come to the conclusion that they are all correctly determined."

Since learning more about these birds, I regret not having obtained and forwarded to him a large series with a view to clearing up the difficulties connected with their mutability of plumage. Subsequently to April, 1890, when the immense buzzard host was observed, I have met with other small migrations. It does not surprise me that only a small percentage of cinereous males are seen, as in all large bird flocks of different sexes and ages the immature young greatly predominate. Nevertheless, out of the fourteen examples shot by me two were cinereous birds, which gives a proportion of fourteen percent. without taking the females into consideration. If Swainson's Hawk employs similar methods of nest building, and meets with similar persecution elsewhere as in Montana, it is no wonder that few birds reach maturity. I have never known these hawks to take poultry of any kind although they are frequently about ranches. This forbearance, however,

[1] Birds of the Northwest, 1874, p. 357.

does not save them in my neighborhood, where all large hawks, lumped together under the name of hen-hawk, have their nests destroyed, and their young ruthlessly stoned at sight, even if the parent birds escape being shot. Swainson's Hawk is the worst sufferer of any, because it builds conspicuously in a low tree on the prairie right in the way of passing ranchmen and others, whereas the Red-tail has its nest at an inaccessible height and generally escapes molestation. Like the last mentioned bird, a pair of Swainson's Hawk will return to the same tree year after year and repair their old nest, nor will they build a new one unless the other should be entirely demolished.

If the light-colored birds referred to are not the adult males as I maintain, what then are they? While *B. swainsoni* is well known to show every variation of brown, it is rather difficult to believe that some individuals eventually become bluish ash and others do not. I hope to return to the subject at a future date when I can submit skins in support of my contention.

GENERAL NOTES.

Breeding of the Loon in Pennsylvania.— It gives me considerable pleasure to be able to add the Loon (*Gavia imber*) to the list of birds known to breed in Pennsylvania. At various times unauthenticated rumors of this bird's occurrence in summer have been heard, but my record is positive and extends the breeding range of the Loon a number of miles to the southward.

The nest in question was found by Mr. Chas. Homan in late May on a large lake near Bushkill, Monroe County. Mr. Homan, who is perfectly familiar with the bird, has kindly favored me with the details and, moreover, accurately described the birds and the eggs to the writer.

The nest was located on a mass of floating rubbish about fifty feet from the shore of the lake. The birds were frequently seen about the nest and though the two eggs were frequently handled by Mr. Homan they were not deserted. The young hatched in safety but disappeared a short time afterward, although the old birds are still on the pond (July 26).

Not knowing the rarity of the nest he had found, Mr. Homan failed to secure the eggs but offered to take one of the birds for me. However, I persuaded him to protect them, and it is to be hoped that the birds will return next year in safety.— Richard C. Harlow, *LaAnna, Pike Co., Pa.*

A Note on the Audubon Shearwater.— On July 30 and 31, a severe hurricane passed the North Carolina coast, with high southeast to southwest winds. While the writer was collecting on Fort Macon Beach, near Beaufort, N. C., August 1, he found two specimens of the Audubon Shearwater (*Puffinus lherminieri*). One, which was dead, had been dragged by a sand-crab (*Ocypoda albicans*) to the mouth of its burrow, where the crab had commenced to feed on the carcass. The other shearwater was found at the distance of half a mile from the first. Although this second one was alive, it made no resistance to capture; it seemed to be exhausted. The writer carried the bird to the Marine Laboratory of U. S. Fisheries, where it died in spite of attempts to revive it. Both specimens were full grown and measured twelve inches in length.— BARTGIS MCGLONE, *Annapolis, Md.*

'Lead Poisoning in Ducks.'— Conditions similar to those described by Mr. J. H. Bowles for the Misqually Flats, Puget Sound, exist at Lake Surprise, Texas. To the latter locality, Canvasbacks resort from November to March. About the first of January, each year, many of these ducks are found among the rushes along the shore in various stages of sickness. Some can dive, but cannot fly, and all become emaciated. A part of these, of course, are cripples, but most of them, although free from wounds, are plainly diseased, and according to the belief of those who have had most experience with them, the cause is lead poison from shot in the gizzards. No fewer than forty shot have been taken from a single gizzard and the shot generally bear evidence of more or less attrition. As the season advances, the diseased ducks gradually disappear; the greater part die, but some, it is thought, recover. According to the information at hand, no other species than the Canvasback, is thus affected at Lake Surprise.

Ducks secure a great deal of their food by sifting mud through their bills; if shot are abundant in the mud, it is not hard to understand how the birds may collect a considerable number in a day. Resisting digestion to a marked degree, as shot do, the quantity in the gizzard is added to day by day, the ducks continuing to feed over the same grounds, until finally, the gizzard is clogged with shot, and malnutrition, if not actual poisoning, ensues. Epidemics such as we now have evidence of on Puget Sound and at Lake Surprise, in all probability will increase in number, adding another to the almost overwhelming array of unfavorable conditions, against which our ducks must more and more hopelessly struggle.—W. L. MCATEE, *Washington, D. C.*

Masked Duck (*Nomonyx dominicus*) **in Chatham County, Georgia.**— By permission of Mr. G. R. Rossignol, Jr., of Savannah, I take pleasure in making a note of the capture of a young male Masked Duck (*Nomonyx dominicus*) near Wilmington Island in Chatham County on October 5, 1906. It was taken by a young hunter and turned over to Mr. Rossignol and is now in his collection.— ISAAC F. ARNOW, *St. Marys, Ga.*

Black Brant and Marbled Godwit on Long Island, N. Y.— On March 31, 1908, in a heavy southeaster, while lying in a battery for Brant in the Great South Bay, near Babylon, L. I., a flock of seven came to the decoys. All were seen plainly. Six were of the common variety, while the seventh was so much darker in appearance than the rest, that I immediately shot and secured it. The bird proved to be a remarkably fine old male Black Brant (*Branta nigricans*). I think this is the first Long Island record in a number of years.

The Great Marbled Godwit (*Limosa fedoa*), while never common on Long Island, has become now quite rare, so I wish to record a specimen taken by my brother, Harold E. Herrick, at Lawrence on August 21, 1907, and another taken by myself at the same place July 21, 1900.— NEWBOLD L. HERRICK, *New York City.*

Ardea egretta in New Jersey.— On July 6, 1908, my friend Mr. Ralph B. Romaine of New York shot at Black Point, Rumson Borough, Monmouth Co., N. J., an America Egret (*Ardea egretta*). The bird was in company with another which Mr. Romaine writes me "stayed around until about a week ago (July 24) when it was shot, by whom, or where, I do not know."

The specimen was not sexed by the taxidermist, and is now mounted and in the possession of Mr. Romaine, 'The Ledges,' Seabright, N. J.— REGINALD HEBER HOWE, JR., *Concord Mass.*

American Avocet (*Recurvirostra americana*) **in Camden Co., Georgia.**— As I know of no other record of the American Avocet (*Recurvirostra americana*) having been taken in Georgia, and am quite sure no other has been taken in this county, I would like to make a note of one taken by me on Oct. 8, 1903, and now in my possession. When taken it was feeding, in its peculiar way, in shallow water on the river front at the foot of one of the streets in St. Marys. It proved to be a female.— ISAAC F. ARNOW, *St. Marys, Ga.*

Bartramian Sandpiper in Wayne Co., Michigan.— In 'The Auk' for July, 1908 (p. 328), Mr. P. A. Taverner records a Bartramian Sandpiper (*Bartramia longicauda*) for Wayne County and says, "This bird had been deemed extinct in the County for some years." It is true that in the more densely populated districts along the Detroit River this sandpiper was obliterated, as a breeding bird, some twenty years ago and seems unable to reinstate itself, which probably explains its gradual extermination in many portions of the eastern States where formerly abundant, but in the northwestern portion of Wayne County it is still a summer resident. While tramping across the county in the early summer of 1907 Mr. Herbert H. Spicer and the writer met with it in Canton Township, and Mr. Robert C. Alexander collected a set of eggs in Livonia Township. Mr. James B. Purdy of Plymouth once treated the writer to a verbal description of its

nesting habits in Plymouth Township, mentioning the male as frequently uttering its love notes while wheeling high in the air, and describing the solicitude of the adults for their young. The writer recently wrote him for more accurate data and his reply under date of July 17, 1908, is in part as follows: "I first discovered the Bartramian Sandpiper in the spring of 1873 — a single pair — and whether they bred or not that year I cannot say. I did not see them again for some years but for the past fifteen years they have been a constant breeder at this place. I have two sets of eggs collected here; one set of three taken May 5, 1899, and one set of four taken May 10, 1899. The first set was fresh and the second slightly incubated. They were in the same field within ten rods of each other. Another set was found here but I did not get the particulars. The birds have been with us here all this spring, but are at present hiding in the tall grass and hay fields. Would like to have you see their peculiar actions while nesting and hear them whistle while in mid air."

Pine Siskin, *Spinus pinus.*— In the same note Mr. Taverner also conveys an erroneous impression of the local status of the Pine Siskin. The writer has observed more than a hundred during the last eighteen years, mainly in the northeastern portion of the county. The bird is less abundant and even more erratic than the Redpoll.— J. Claire Wood, *Detroit, Michigan.*

Krider's Hawk and the English Sparrow Nesting Together.— During a recent trip to the Dismal River in the Sand Hill region of northwestern Nebraska, I found, some fifteen or sixteen miles away from any habitation, a nest of Krider's Hawk from which I took on May 25 two well incubated eggs. One was beautifully colored while the other was immaculate. In the lower part of the nest, which was constructed of coarse sticks, a pair of English Sparrows were nesting. I did not take either of the hawks, believing it a crime to destroy such a beautiful bird that is now so rare. The male was rarely seen, but the female might easily have been shot when flushed from the nest. She was exceedingly wild and elusive and when flushed did not return to the nest for a considerable time, and then by a round-about course, and with great caution. I had the pair under observation for two days before taking the eggs.— John Lewis Childs, *Floral Park, N. Y.*

Migration of Hawks.— In Mr. Justus von Lengerke's note on 'Migration of Hawks' (Auk, XXV, pp. 315–316), the line of migration is described as toward the Delaware Water Gap and, as my observations covered that portion, I would like to report what I saw in 1904 while living in Shawnee, four miles up the river.

The line of flight for hawks, and also other birds, such as Crows, Blackbirds, Nighthawks, etc., was down the west side of the river just below the crest of the hills until reaching a point about two miles above the Gap, when they would invariably rise over a low corner of the hills and pass on

to the southwest by west going north of the Kittatiny Mountain range. No birds were observed to go through the Gap, though I would not say that none do.— BRUCE HORSFALL, *Princeton, N. J.*

Turkey Buzzard (*Cathartes aura*) **in Northern Illinois.**— On June 28, 1908, I watched one of these buzzards circling over the links of the Exmoor Country Club at Highland Park. It is rarely seen so far north in the State. Mr. Benj. T. Gault recorded three seen in the city of Chicago, April 1, 1896 (Wilson Bull., No. 9, July, 1896), and there is a mounted specimen in the collection of the Academy of Sciences, Chicago, which was taken at Worth, Ill., several years ago.— RUTHVEN DEANE, *Chicago, Ill.*

Pileated Woodpecker near Litchfield, Conn.— To-day (June 20, 1908), while driving near my home in Litchfield, Conn., I had the good fortune to see a fine specimen of the Pileated Woodpecker (*Ceophlœus pileatus abieticola*). It was on the wing and high up when I first saw him, and beginning to cross, almost at right angles to our course, a deep valley which we were to drive through lengthwise. He was far off when first seen and my attention was attracted by his lazy, even flight and his great size. But his flight soon brought him directly over our road and a little way in front of us. Then I could see the great white markings on his wings. The bird flew on across the valley and with a swoop, which ended with an upward curve, entered the foliage of a large maple, which stood upon the mountain side, making for its trunk. He had alighted too far up the valley side for me to follow up the search, and, indeed, there was no need for this because his markings and manner of flight had made the identification plain. The region is extremely wild and rugged, in the Berkshires.— JOHN HUTCHINS, *Litchfield, Conn.*

Nelson's Finch in the Mountains of Virginia.— Some light may be thrown upon the line of spring migration of *Ammodramus nelsoni* by its occurrence in Montgomery County, Virginia, in May. Dwight, in 'The Auk' for October, 1896, speaks of the breeding of this species in Illinois, Wisconsin, Minnesota, Kansas, Dakota, and Manitoba; its occurrence as a fall migrant on the Atlantic Coast from Massachusetts to South Carolina, and adds that spring records are few and far between.

My house on the Campus of the Virginia Polytechnic Institute at Blacksburg, Va., is near a low meadow, flooded in winter as an ice pond, and in spring and summer rank with a marsh-like growth of grass and weeds; it affords a hunting ground for my cat, who frequently brings field-mice into the house to eat. On the evening of May 23, 1908, I surprised the cat with a bird which he dropped. I always confiscate his bird-catches for 'Audubonic' reasons, and picked this up thinking it a Yellow-winged Sparrow. To my surprise I saw it was a Sharp-tailed Finch, and on comparing with a series of Nelson's Finches and Sharp-tailed Finches taken

by me in October in the marshes around Charleston, S. C., I realized that the bird was Nelson's Finch. It was an adult female, very bright and fresh in color; ova about the size of No. 10 shot; and save for the loss of a few back feathers, in excellent condition. The skin is now in my collection (No. 1379). If I had been out collecting, with no special thought for this species, and had seen the bird as it would probably have appeared in the high grass, doubtless I would have passed it by for a Yellow-winged Sparrow. They may therefore occur here every spring on their passage North. I searched the meadow carefully during the next two days, but saw nothing further of the species. It may therefore have been an accidental occurrence, the knowledge of which is due to the ornithological discrimination of my maltese cat.— ELLISON A. SMYTH, JR., *Blacksburg, Va.*

Lark Sparrow (*Chondestes grammacus*) **in Camden County, Georgia.**— On the afternoon of August 11, 1908, I noticed a sparrow sitting on the wire fence of my field, and at first took it to be a Vesper Sparrow that had arrived ahead of time but on closer inspection I saw the difference and shot it. It proved to be a male Lark Sparrow (*Chondestes grammacus*) and is now in my collection.— ISAAC F. ARNOW, *St. Marys, Ga.*

Lark Sparrow (*Chondestes grammacus*) **in Southwestern Pennsylvania.** — On June 22, 1908, at Leetsdale, Pa., I observed a Lark Sparrow (*Chondestes grammacus*) hopping along the public road in company with several Vesper Sparrows. I at first mistook it for one of the latter, but as it flitted to a nearby fence the fan-shaped, white-tipped tail attracted my attention, and I recognized the bird. On the next day I saw another of the birds on the road making active attempts to catch a small butterfly, and I secured the specimen. On June 24 I secured another specimen in a stone quarry along a narrow road through a woods, this being the last bird of the species seen, although I looked carefully for them. Both birds taken were males in rather worn plumage, and the testes in the last specimen were greatly enlarged.

The Red-headed Woodpecker (*Melanerpes erythrocephalus*) is very rare in this locality this season, but most all other birds appear to be on the increase.— WM. G. PITCAIRN, *Allegheny, Pa.*

Chondestes grammacus at Ipswich, Mass.— I wish to record that on August 28, 1908, Miss E. D. Boardman and I saw in a newly planted field at Ipswich, a fine Lark Sparrow. The bird was associated with Chipping, Vesper and Song Sparrows. We were attracted at once by the curious face markings, the unstreaked breast with the small black spot, the rounded tail tipped with white, the outer feathers with much white. These details were all carefully noted at a distance of fifteen feet, as the bird was feeding. Having seen them in the West I knew it was a Lark Sparrow, the second record, I believe, for Ipswich.— LIDIAN E. BRIDGE, *West Medford, Mass.*

A Tame Field Sparrow.— An unusual experience with a Field Sparrow (*Spizella pusilla*), had while in camp near Paul Smith's, N. Y., this spring, seems worthy of note. I will transcribe from my note-book the account of it made at the time.

"May 3, 1908.— Last night and early this morning there was a heavy fall of snow, covering the ground to a depth of 8 to 10 inches. The birds had a hard time of it and a number of Juncos and Chipping Sparrows took refuge in our tents during the night. In the morning there were fifteen or twenty birds — Juncos, Vesper, Chipping, and two Field Sparrows — searching for food about the tents, so, about ten o'clock, I scattered bread crumbs and some grass seed which we happened to have in camp. While doing this one of the Field Sparrows, a female, hopped right up to me, paying no heed to my presence or movements, hopped on to my feet when I stood still, allowed me to walk rapidly up to her, kneel down and stroke her with my hand, in fact permitted me to handle her quite roughly without showing the slightest sign of timidity. Once I pushed her away from the seed, but she would not go and instead actually forced her head under my fingers, raising them up in order to reach the seed beneath them. Another time she squeezed herself in between my knees while I was kneeling on the ground, and fed on some seed beneath me. The presence of other people did not frighten her, for four of my men came up to watch me and she permitted them also to touch her — all the time feeding as busily as she could.

"Her fearlessness was probably not due to hunger alone, for after having eaten all she wanted, she perched herself on a heap of straw under a tent-fly close by, tucked her head under her wing and went to sleep. Ten or fifteen minutes later I woke her up, whereupon, after preening herself for a minute or two, she flew over to me and resumed feeding from my hand. Swift and sudden movements on my part, such as casting seed, would not frighten her in the least, even though my hand might pass within a few inches of her. Several times pieces of bread or seed would strike her quite forcibly, but even that would not disturb her. The other birds were all comparatively shy, the other Field Sparrow, a male, particularly so, though a few would allow me to approach within eight of ten feet of them. The grass seed was invariably taken in preference to the bread crumbs." — E. Seymour Woodruff, *State Forester, Albany, N. Y.*

Destruction of English Sparrows.— Many unsuccessful attempts have been made to reduce the numbers of these pests. Fire-arms cannot be used within the city limits, the bounty law proved a failure and the free use of poisoned grain, except in certain isolated sections, would include too many of our native species. The balance of nature's forces, however, sometimes weighs a little in our favor, though unfortunately such occurrences are too few and far between.

At 8:40 P. M. August 11, 1908, Chicago and vicinity were visited by a

torrent of rain which is seldom exceeded in force or quantity. The downpour continued with but little cessation until 3:55 A M. the following day, during which time 3.30 inches of rain fell No hail accompanied the storm and the temperature averaged 72°. The storm was evidently more severe in certain sections of the city, as the Superintendents of some of the parks and cemeteries have communicated that the destruction of Sparrows was not noticeably large. The daily papers reported that two thousand were gathered and buried by the school children in the vicinity of West 60th and Ada Streets. Of this I have no authentic record, but I am much indebted to Mr. Luther E. Wyman for an account of his personal observations which were made the morning following the storm. Mr. Wyman writes:

"An unusual disaster to bird life came in the form of the terrific storm that visited Chicago and vicinity on the night of Aug. 11th. On the following morning residents of the West and South sides, where the storm was most severe, reported great numbers of dead sparrows on walks and pavements. In the vicinity of 64th Street and Harvard Avenue the destruction was so severe that an observer states there were not enough sparrows left on the following night 'to make a cheep.'

"My own observations were confined to Garfield Park, where they roost in great numbers. Here I found them dotting the grass under the trees, but massed around the trunks of the larger trees, though many lay even under such dense-growing shrubs as the lilac. The majority, however, were found within eighteen inches of the tree trunks, most numerous on the side away from the wind, and of these probably ninety per cent. lay with heads toward the trees, as though when beaten from the branches by the rain they had instinctively fluttered toward the trunk, or had hopped toward it in the grass, only to be actually drowned by the incessant downpour. The area I examined would cover probably less than a third of a city block, yet I found upward of a thousand birds, all sparrows but one,—a young robin. A Yellow Warbler, however, that has haunted this section all summer, escaped the storm, as evidenced by his cheerful song."—RUTHVEN DEANE, *Chicago, Ill.*

Swainson's Warbler and Chuck-will's-widow Breeding North of James River, Virginia.— On the 31st of May, 1908, I found the nest and three eggs of the Swainson's Warbler (*Helinaia swainsonii*) in Warwick Co., Virginia. The location was about thirty feet from the head of a mill pond, in some second growth bushes in a clearing in woods. The nest was placed between two upright main branches of the bush, about 5½ feet above the ground, and composed of dry birch leaves, fine weed stems and seed tops, lined with very fine rootlets and straws. Both birds were very tame and kept up a constant chipping while the nest and eggs were being securely packed away. Visiting this locality again two weeks later in hopes to find that a second attempt at breeding had been made, I was not disappointed by finding a new nest similarly located not far

distant from where the first one was found, and composed of the same materials. Both birds were very attentive, and while I was very careful not to touch the nest when looking into it, a week later on visiting the spot, I found the nest deserted. The eggs in the first case were quite fresh. Although this place and similar localities have been worked almost yearly, for the last fifteen or eighteen years, this is the first instance of the birds' breeding in this section of the State that has come to my knowledge.

On May 23, 1908, my father, H. B. Bailey, found on my place in Warwick Co., Virginia, a set of two eggs of Chuck-will's-widow. As this was not far from the house, he secured a gun and shot the female, which was in fair plumage, notwithstanding the eggs were heavily incubated. The eggs were deposited on the bare ground in woods that had been previously burnt over. This is the first time we have ever secured positive proof of this bird breeding in this locality, and I believe this case, as that of the Swainson's Warbler, are first records for these birds breeding north of James River.— H. H. Bailey, *Newport News, Va.*

Bachman's Warbler in Camden Co. and Breeding in Chatham Co., Georgia.— As anything in reference to Bachman's Warbler (*Helminthophila bachmani*) is of interest, I will say that I have at last found it here (as a migrant) and taken three specimens. About noon on August 14, 1908, I took an immature male and an immature female feeding about 15 to 20 feet up in a thicket of young oaks. They were in company with Carolina Chickadees, Blue-gray Gnatcatchers and Parula Warblers. The next day I took a mature female about the same place, and in the same company with the addition of Yellow-throated and Prairie Warblers and Painted Buntings.

On June 21, 1908, Mr. Gilbert R. Rossignol, Jr., of Savannah, found a nest containing one egg in Chatham County. On the 24th he returned and found that the nest contained three eggs, but he did not see the bird. Prof. W. J. Hoxie, who was with him, however, both saw and heard the bird and took it to be Bachman's Warbler. I have compared these eggs with eggs of Swainson's Warbler and found them not only much smaller but with a gloss never seen on the latter. The nest was placed in a cane about two feet from the ground in a swamp, and was composed of sweet-gum leaves, fine grass, etc., lined with dead Spanish moss. Both nest and eggs are now in Mr. Rossignol's collection.— Isaac F. Arnow, *St. Marys, Ga.*

Cape May Warbler in Camden County, Ga.— The Cape May Warbler (*Dendroica tigrina*) is found here both as a spring and fall migrant but is always rare. The spring migrants pass through about the middle of April (specimens taken this spring, 1 ♂, April 17, 1 ♀, April 18), while the only fall records I have were unusually late in comparison with records from other points in Georgia and Florida. These were two birds taken on Oct. 31, 1905 — one mature and one immature female.— Isaac F. Arnow, *St. Marys, Ga.*

The Kirtland and Pine Warblers in Wayne Co., Michigan.— For years I have looked for the Kirtland Warbler (*Dendroica kirtlandi*) here in Wayne County and have twice met with birds that I thought were this species but under conditions not entirely free from an element of doubt and no record was made of them in consequence. May 30, 1907, however, I identified a Kirtland's Warbler to my entire satisfaction. On Section 5, Hamtramck Twp., there are several ridges covered with small hazel bushes but recent fires had killed these and wiped out all weed growth, leaving a desolate appearance. When first seen the bird was perched on a dead hazel near the top of one of these ridges. It was very tame, or rather indifferent, and when forced to flight, crossed to the next ridge and allowed a second near approach. The main points of distinction were size, plain colors, tameness, silence and an occasional ovenbird-like jerk of the tail. Having taken thirty-three species of warblers here and given the family close attention the identification may be regarded as good as possible without actually securing the bird.

April 19, 1908, I shot a male Pine Warbler on Section 9, Taylor Twp. This is the first specimen taken in the county.— J. Claire Wood, *Detroit, Mich.*

The Hooded Warbler a Summer Resident in Greene Co., N. Y.— I observed Hooded Warblers (*Wilsonia mitrata*) on several occasions, between May 20 and July 1, at Palenville, Greene Co., N. Y. (alt. 425 ft.), nine miles west of Catskill. They were also identified by Mr. S. H. Chubb. I also observed a few in the same locality during June, 1907. This seems to prove that the Hooded Warbler is a summer resident in Greene County.— Stanley V. LaDow, *New Baltimore, N. Y.*

Breeding of the Carolina Wren in Rhode Island.— I have before now communicated to you the fact that the Great Carolina Wren appears to have occasionally bred in southern Rhode Island. This year I am quite sure again that the wren is breeding here, and for the first time that more than one pair have bred in this neighborhood. The post-nuptial song has lately been very noticeable in the morning. On July 13 I distinctly heard two males singing different songs at the same time, or in answer to one another, both being in my garden. They appear to prefer to begin singing about 6 A. M., and it is often continued as late as nine or ten o'clock. This morning, the 29th July, two males have been singing enchantingly, one of them giving the full, ringing note of the Cardinal Bird, and the other a very different, but resonant song, more individual to the wren itself.

Once heard, the quality of the tone is easy to recognize, and I shall hope to hear of other records in this vicinity, and perhaps further north.

I feel that we are to be congratulated upon the regular visits of this very attractive songster, as it is now several years that I have heard them at this season.— R. G. Hazard, *Peace Dale, R. I.*

The Blue-gray Gnatcatcher in Southeastern Pennsylvania.— In Mr. Stone's 'Birds of Eastern Pennsylvania and New Jersey,' page 148, the Blue-gray Gnatcatcher (*Polioptila cærulea*) is said to be a "Rare summer resident in Southern New Jersey, and much less common in Southern Pennsylvania. Only a rare straggler in the Delaware Valley." In a footnote on the same page: "This species may have bred here formerly, as there is a very young bird in the collection of the Academy of Natural Sciences, obtained near Philadelphia many years ago by Wm. Wood."

I believe the following list is a complete summary of specimens either seen or captured in this vicinity (southeastern Pennsylvania):

One shot at Chestnut Hill, Pa., Sept. 3, 1880, by Dr. W. L. Abbott. (Stone's Birds of E. Penn. and N. J., p. 148.)

One found dead at Frankford, Pa , Apr. 19, 1904, by Richard F. Miller. (Auk, April, 1907, p. 222.)

One seen at Swarthmore, Pa., April 25, 1905, by Dr. Spencer Trotter.

One (probably the same bird) seen at Media, Pa.. May 1, 1905, by Philip H. Moore; May 2, by Lydia G. Allen, and May 7, by Alice Fussell. (Cassinia, 1905, p. 67.)

One seen at Wayne, Pa., May 18, 1907, by Leonard S. Pearson. (Auk, Oct. 1907, p. 447.)

One female shot at Wayne, Pa., April 18, 1908, by L. S. Pearson. (Specimen now in collection of Mr. Witmer Stone, Acad. Nat. Sci. Phila.)

One male shot at Wayne, Pa., May 2, 1908, by Alfred C. Redfield. Same bird seen by L. S. Pearson on same date.

This makes a total of seven records — one fall capture, three spring captures, and three specimens seen in spring.— LEONARD S. PEARSON, *Wayne, Pa.*

The Hermit Thrush as a Summer Resident of Long Island, N. Y.— Late in the afternoon of July 13, 1908, while walking along the road between Holbrook and Patchogue, L. I., about two miles from the latter place, I heard a Hermit Thrush (*Hylocichla guttata pallasii*) singing at a distance of about a hundred yards from the road. After stalking it for more than half an hour I was able to secure a good view of the bird with an opera-glass and complete the identification, although the song, with which I was familiar, had been unmistakable from the first. Meantime the bird had been singing continually, except when I would disturb it by approaching too closely. I am quite certain that I heard one other Hermit Thrush singing in the vicinity at the same time.

The locality is densely grown with young white oaks (*Quercus alba*) eaching a height of perhaps twenty or twenty-five feet, together with a few scattered pitch pines (*Pinus rigida*). The underbrush is composed largely of short blueberry bushes. The place is only forty feet above sea level, and three miles distant from Great South Bay.

This seems to be the first adult Hermit Thrush observed on Long Island during the breeding season, though there are two previous records for

immature birds (Dutcher, Auk, III, 1886, pp. 443, 444, and Braislin, Auk, XXIV, 1907, pp. 186–189). Dr. Braislin, in the reference just cited, says, "Further investigation will probably show that the Hermit Thrush is, though rare, a regular summer resident on Long Island."— FRANCIS HARPER, *College Point, N. Y.*

Records from Bloomington, Indiana.— Those who have copies of 'Birds of the vicinity of the University of Indiana' may be interested in the following notes giving additions to the data contained in that paper. All are from the migration record of Dr. W. L. Hahn for the spring of 1908. The Redwinged Blackbird arrived on March 3, one day earlier than previously recorded; the Chipping Sparrow, March 15, one day earlier; the Tree Swallow, March 29, 7 days earlier; Blue-gray Gnatcatcher, March 22 (authority of H. Green), 15 days earlier; and the Mockingbird, February 19, 34 days earlier. The last record is particularly interesting as an indication that the bird may remain at Bloomington during the winter. Certainly winter conditions are no more unfavorable at Bloomington than at other localities where the bird is resident, and we may confidently expect that before many years, the Mockingbird will be added to the already long list of winter birds of Bloomington. In this connection I desire to record the fact that Mockingbirds were rather common in Benton County, Ind., a locality considerably north of the known breeding range, on September 12, 1906.— W. L. MCATEE, *Biological Survey, Washington, D. C.*

New and Unpublished Records from Washington.— In preparing a standard list of the birds of Washington (now numbering, roundly, 375 species) we have not hesitated to accept, on occasion, the first-hand testimony of competent ornithologists, even when unsuppo ted by specimens. A few of our own records, likewise, depend upon the binocular instead of the gun, but when this is the case, the fact is clearly stated.

My thanks are due to several gentlemen, notably to Dr. A. K. Fisher, of the Biological Survey; to Mr. A. W. Anthony, of Portland; and to my colleague, Mr. J. H. Bowles, of Tacoma, for permission to publish many of these presumed "first records." It may well be in some instances that previous publication has been overlooked, in which case the writer would esteem it a favor to be corrected. A list of the birds of Washington prepared by Professor O. B. Johnson, then in charge of the department of Zoölogy in the University of Washington, appeared in the 'Report of the Governor of Washington Territory for the year 1884' (published in 1885). This list enumerates 273 species, including some which appear below; but inasmuch as it was confessedly "popular" (the East-side records especially being partly based on hearsay or inference) and employed only vernacular names, it cannot, unfortunately, be cited as authority.

Pinicola enucleator alascensis. ALASKAN PINE GROSBEAK.— Common breeders in the balsam belt of the Mount Baker district; definitely observed south of the 49th parallel. (Allan Brooks, *in epist.*, Jan. 17, 1907.)

Calcarius lapponicus alascensis. ALASKAN LONGSPUR.— Unquestionably of ordinary occurrence east of the Cascade Mountains, but the only authentic record appears to be that of a specimen, a female of notably light coloration, taken in Seattle in October, 1907, by Mr. E. H. Jones.

Amphispiza bilineata deserticola. DESERT SPARROW.— A singing male was first seen in the sage-brush near our camp on Brook Lake, in Douglas County, May 31, 1908. He was narrowly observed on several occasions subsequent, and once appeared in company with a female. A male bird was several times sighted through a stretch of half a mile or so along the north shore of the lake, but never more than one at a time, and we could not be sure that above a single pair existed in the county — or indeed in the State.

Melospiza lincolnii. LINCOLN'S SONG SPARROW.— Until recently curiously overlooked, although records abound on all sides of us. The first specimen noted was picked up from the ground beneath telegraph wires in Tacoma, May 22, 1906, by A. Gordon Bowles, Jr. This summer (June 28–July 14) I found a breeding colony of some twenty individuals, which occupied the swamp at Longmire's Springs, in the Rainier National Park. The altitude was nearly 3000 feet, and the birds on the first of July seemed to be about evenly divided between care of youngsters out of nest and preparations for a second nesting.

Helminthophila celata. ORANGE-CROWNED WARBLER.— Spec., ♂, by J. H. Bowles, Tacoma, May 8, 1907. (Ident. by Dept. of Agriculture, Washington, D. C.). Believed to be regularly migrant east and west of the Cascades.

Hylocichla ustulata swainsonii. OLIVE-BACKED THRUSH.— Thrushes of the *ustulata* group found along the eastern slopes of the Cascade Mountains have been allowed to pass as *typicus*, although it was presumed that specimens taken in the Kalispell region would prove to be *swainsonii*. To our surprise, Mr. Bowles finds *swainsonii* alone this summer, in the valley of the Stehekin, Chelan County, where they are very common up to 4000 feet. Specimens compared at Washington, by courtesy of Dr. A. K. Fisher.

Hylocichla guttata. ALASKA HERMIT THRUSH.— Two records: Tacoma, April 15, 1905, by J. H. Bowles; Seattle, Sept. 21, 1907, by Jennie V. Getty. Identification by Biol. Surv., Washington, D. C.

Hylocichla guttata sequoiensis. SIERRA HERMIT THRUSH.— Now established as the resident breeding form in the Cascade Mountains, at least west of the divide. Twin Lake, Mt. Baker District, Aug. 9, 1905, by W. L. Dawson.

Dryobates villosus hyloscopus. CABANIS'S WOODPECKER.— One specimen, ♀, Dec. 25, 1895, by Geo. G. Cantwell (J. H. Bowles *in epist.* Ident. by Bureau of Biol. Surv., Washington, D. C.). This identification is made in careful distinction from *D. v. monticola*, which occurs regularly in the northeastern part of the State, and to which the reference in Bendire, Life Hist. N. A. Birds, II (1895), p. 53, is presumed to belong. Others seen at Kirkland by Miss Jennie V. Getty.

Colaptes auratus luteus. YELLOW-SHAFTED FLICKER.— A specimen in Mr. Rathbun's collection was taken by Mr. Matt. H. Gormley on Orcas Island, Oct. 15, 1903. The bird is a male, and is typical, save for the faintest possible tinge of salmon in the yellow. The casual occurrence of this species west of the Cascades during migration is attested by several other witnesses; notably, Mr. D. E. Brown, formerly of Glacier, and Mr. Victor Savings, of Blaine.

Glaux funerea richardsoni. RICHARDSON'S OWL.— A specimen taken on the Nooksack River, near Glacier, Jan. 17, 1905, by D. E. Brown, has been examined by the writer.

Glaux acadicus scotæus. NORTHWEST SAW-WHET OWL.— Dr. A. K. Fisher, *in epist.*, Jan. 18, 1907, identifying specimen secured at Nisqually in Dec. (?) 1906; collection Edwards Bros., Tacoma. The only other recent specimen taken proves to be true *acadicus*.

Grus americana. WHOOPING CRANE.— I should hesitate to report the appearance of a large flock of these white cranes in Yakima County (May 2, 1908) and studied by myself through binocular at a range of *five miles*, were it not for abundant corroborative testimony on the part of ranchers both in Yakima and Douglas Counties. In the Big Bend country, especially this remnant of a vanishing race appears to be making its last stand.

Ægialitis nivosa. SNOWY PLOVER.— Specimen taken at Gray's Harbor, Sept. 3, 1899, by C. W. Bowles; now in collection of C. W. and J. H. Bowles in Ferry Museum, Tacoma.

Pisobia aurita. SHARP-TAILED SANDPIPER.— J. M. Edson, *in epist* Four specimens taken from a flock at Bellingham in September, 1892, carefully identified but not preserved.

Bartramia longicauda. BARTRAMIAN SANDPIPER. — Several times *heard* in western Walla Walla County near Two Rivers, April 22 and 23, 1905. Having been brought up on the prairie, I could not have been surer of my mother's voice.

Stercorarius pomarinus. POMARINE JAEGER.— "On Sept. 7, 1897, I saw a specimen of *Stercorarius pomarinus* in Puget Sound near Whidby Island, and on Sept. 24 one in Shoalwater Bay." (A. K. Fisher, *in epist.*, April 7, 1908.)

Larus vegæ. VEGA GULL.— Several birds with very dark mantles seen about the wharves and shipping at Bellingham where shooting was impossible. One of these dark-winged birds, resting frequently on the top of a convenient pile, had a foot taken off as by a sharp-edged trap. The bird, however, supported itself freely upon the tarsal stump and apparently made light of its infirmity. Old "Dot-and-go-one" had also an unusually conspicuous spot of vermillion which glowed upon the angle of the lower mandible.

Xema sabinii. SABINE'S GULL.— One seen by Mr. Anthony in January or February, 1899, while cruising off Gray's Harbor. (A. W. Anthony, *in epist.*, Feb. 13, 1907.)

Sterna forsteri. FORSTER'S TERN.— Of regular occurrence on Brook

Lake and on Moses Lake, in Douglas County. Twenty or thirty seen in 1905, 1906, and again in 1908.

Dendrocygna bicolor. FULVOUS TREE-DUCK.— One specimen secured from a flock of ten on Gray's Harbor, Oct. 3, 1905, by Willis G. Hopkins, Esq., of Aberdeen, and now in his possession. It is interesting to note in this connection that a flock of eleven birds appeared at Alberni, B. C. (Vancouver Id.), on the 29th of September of the same year. From this flock five were secured by Mr. J. S. Rollin, a rancher; and one of these, a handsome male, now stands in the Provincial Museum at Victoria.

Puffinus opisthomelas. BLACK-VENTED SHEARWATER.— "Off Cape Flattery in June." (A. W. Anthony, *in epist.*, Jan. 15, 1907.)

Puffinus tenuirostris. SLENDER-BILLED SHEARWATER.— "Off Cape Flattery in October and November." (A. W. Anthony, *in epist.*, Jan. 15, 1907.) In August, 1905, Mr. Bowles witnessed the migration of countless thousands of these birds a quarter of a mile off-shore, at Moclips, and secured specimens.

Oceanodroma furcata. FORK-TAILED PETREL.— "Just off the Cape." (A. W. Anthony, as above.)

Phaleris psittacula. PAROQUET AUKLET. "I have seen it between Port Townsend and Cape Flattery." (A. W. Anthony, *in epist.*, Jan. 15, 1907.)— W. LEON DAWSON, *Seattle, Washington.*

Averaging Migration Dates.— What is the best way of averaging the dates of bird arrivals? This is a question that often arises in connection with the migration work of the Biological Survey.

Commenting on the method used here, Mr. Witmer Stone says (Proc Acad. Nat. Sci. Phila., 1908, p. 138): "As so little has been attempted in the way of combining local migration records, I find it difficult to discuss the comparative value of different methods. Some casual allusions by Prof. Cooke to the methods employed by him, form indeed the only contribution to the subject with which I am familiar. He recognizes the danger of including the latest dates of arrival in computing averages and rejects them, just as I have advocated above, but in deciding how many to reject his method seems to lack definiteness and to involve the personal equation. He says (Auk, 1907, p. 347), 'When using migration records for the calculation of average dates of arrival, I usually discard dates that are more than six days later than the probable normal date of arrival.' This would seem to imply an arbitrary selection of 'the probable normal' date before any averaging is done, which seems to be a dangerous method."

For the benefit of any that are interested in the subject I will give my method in full and if any one can suggest a better, I am open to conviction.

What is desired in our work, is a date that represents the average time of the arrival of the first in normal migration. The securing of such a date requires the rejection of both extra early and extra late dates. The principal problem is the determining of where to draw these limits. My study of the relation of bird migration to the weather has convinced me

that birds seldom vary on account of the season more than six days either way from their average date of arrival. An example will show how this limit of six days is employed. The Hooded Warbler has been reported as arriving at Washington, D. C., on the following dates during fifteen different years: April 19, 26, 27, 27, 29, 29, 30, May 1, 1, 3, 6, 8, 9, 10, 12. The average of these fifteen dates as they stand is May 2. The first rejection drops April 19 as too early, and May 9, 10, and 12 as too late. The average of the remaining dates is May 1. It is now seen that May 8, should also be discarded. The average of the ten dates left is April 30. This date of April 30 is considered as the "probable normal date of arrival," so far as our records stand at the present time, and is published as the "average date of spring arrival" based on ten years' records.

How near this date is to the truth can be surmised from the amount of variation in the records. The differences between each of the ten dates used and April 30 is, in days, as follows; 4, 3, 3, 1, 1, 0, 1, 1, 3, 6 — a total of 23, which divided by ten gives 2.3 days as the probable error; *i. e.*, it is probable that the date April 30 is within 2.3 days of correct. The greater the number of observations and the closer these are in agreement, the smaller will be the probable error. Thus in the case of the White-eyed Vireo at Washington, D. C., the earliest dates of arrival for twenty-two years are: April 18, 18, 19, 19, 20, 21, 21, 22, 22, 22, 22, 23, 23, 23, 24, 24, 24, 25, 25, 26, 26, 26 — average, April 23; average variation from this date, 2.1 days. The most uniform record we have in all our four hundred thousand notes on bird migration is that of the Chimney Swift at New Market, Va. The dates of arrival are: April 10, 11, 11, 12, 12, 12 12, 14, 14, 14, 15, 15, 15, 16, 16, 16, 16, 16, 16. Average, April 14; average variation, 1.7 days. This indicates that if the record was extended indefinitely, to a hundred years or more, the probability is that the average date finally obtained would not vary more than 1.7 days from April 14.— Wells W. Cooke, *Biological Survey, Washington, D. C.*

Ontario Bird Notes.— Brünnich's Murre. A flight of Brünnich's Murre *Uria lomvia*) appeared at Toronto on November 29, 1907, and for several days dead birds were picked up on the shores of Lake Ontario. They were reported in the Niagara River below the Falls and in Lake Erie on December 1, and in the Detroit River on the 4th and individuals were picked up at Woodstock, Strathroy, and other inland points in southwestern Ontario. All the birds examined had empty stomachs as has been the case in all previous migrations.

Gannet. A young Gannet (*Sula bassana*) was picked up dead, about the last week of November, 1907, by Mr. Joseph Gilmore, on his farm in the township of Wainfleet, ten miles southwest of Welland, Ont., and several miles from Lake Erie. The bird was in bad condition when found and had lost a leg, but it was preserved and is in the possession of Mr. Gilmore. Mr. Jos. S. Wallace was the first to recognize the bird and I am indebted to him for the record and photographs of the specimen.

MIGRATION OF HORNED OWLS. The winter of 1907–'08 was marked in southern Ontario by the presence of great numbers of Horned Owls; I examined twenty-four between October 31 and February 26, and as far as I was able to distinguish between them, the resident form of *Bubo virginianus* was not present, and did not appear till the second week of April, some time after the migration had ceased. The first November birds were light Arctic Horned Owls (*Bubo virginianus arcticus*), followed by others not so white, and several dark Labrador Horned Owls (*Bubo virginianus heterocnemis*). All winter the dark birds were the rarer, and the majority of the owls examined were not referable to either of the three forms, but were closer to *arcticus* than to *virginianus*, most of them having decided black and white markings and white feet. A very light male was taken at Toronto November 1, 1907, and a very dark one November 26.

GRINNELL'S WATER-THRUSH. I have in my collection three skins of Grinnell's Water-Thrush (*Seiurus noveboracensis notabilis*) taken at Toronto in May, 1897, a male and female taken on the 4th by Mr. J. Hughes Samuel and a male taken on the 7th by myself, all three from the vicinity of Ashbridge's Bay. While Ontario water-thrushes are probably intermediate between the eastern and western forms, the typical western bird has not been recorded before from Ontario.

PHILADELPHIA VIREO. A skin of the Philadelphia Vireo (*Vireo philadelphicus*) in my collection is of interest from the fact that the wings have each a bastard primary of about half the length usual in the Warbling Vireo, and while the case is not unique, it is rare enough to record. The bird was taken by Mr. J. Hughes Samuel at Toronto, September 2, 1899.—JAMES H. FLEMING, *Toronto, Ont.*

RECENT LITERATURE.

Stone on 'Methods of Recording and Utilizing Bird-Migration Data.' — In a paper of thirty pages [1] Mr. Witmer Stone discusses present methods of recording and utilizing bird-migration data. As is well known, Mr. Stone has long been active in this line of research and has given the subject of migration data thorough consideration, so that his conclusions on the subject are of special interest.

The data mainly utilized in the present paper are those collected during the last seven years by the Delaware Valley Ornithological Club, by thirty-five observers, within a ten-mile radius of the center of Philadelphia. These observations are carefully analyzed from various points of view and the results graphically shown by means of maps and diagrams, the latter, by means of curves, showing the relation of migration movements to meteorological conditions for the years 1902–1906.

In general, migration records are, for the most part, the work of single observers at isolated stations, and until very recently no attempt has been made to compare the records of several observers at practically the same locality. This was first done by Mr. Stone for Philadelphia in 1905 (Condor, 1906, pp. 88–90), and later by Prof. W. W. Cooke for Washington (Auk, 1907, pp. 346–348). In general our records give only the date of 'first arrival'; the U. S. Department of Agriculture (Biological Survey) schedules also call for arrival of the main flight or 'bulk.' Reasons are given for considering both these methods unsatisfactory, from the very nature of the case, since the first arrival may be merely a straggler, and the 'bulk arrival' a matter of estimate, subject to the element of personal equation. In commenting on these points Mr. Stone calls attention to the fact "that while a date of 'first arrival' may be perfectly accurate for the limited area covered by an observer, it would differ very materially from the earliest date of arrival for the species in a circle of five or ten miles around that observer's station," as demonstrated by the records for the vicinity of Philadelphia. Thus "the average date of arrival for a number of years, based upon the observations of a single individual, varies materially from the average date obtained by another equally accurate observer stationed a few miles distant." He concludes "that results based upon such individual records are really of but little value for comparative work, so great is the possibility of error." This is rather disheartening, not to say startling. Mr. Stone, however, suggests an obviously better method, which it is to be hoped will be systematically adopted by local bird clubs and societies, He says:

"After discrediting the value of individual records, one must naturally suggest some method of recording migration by which results sufficiently

[1] Methods of Recording and Utilizing Bird-Migration Data. By Witmer Stone. Proc. Acad. Nat. Sci. Philadelphia, 1898, pp. 128–156, July 22, 1908.

accurate for comparative work are to be obtained. This, I think, is to be found by securing a large number of observers in a limited area and by combining their results, as has been done by the Delaware Valley Ornithological Club in the vicinity of Philadelphia. If we had seven-year records kept by thirty-five individuals within ten miles of Washington, and a similar series within ten miles of Boston for comparison with the Philadelphia series, then I think we should be able to estimate with some degree of accuracy the progress of migration between these points."

Mr. Stone's discussion of 'Waves and their Components' is of special interest. It is based on the records of forty-seven common species, for which the data are fullest, and covers the years 1904-1907. He formally tabulates eleven waves, but gives the number as varying from eleven to fourteen for the spring migration, to the consideration of which the present discussion is restricted. He finds "a remarkable correspondence in the species which make up each wave. And the same 'wave' may be recognized through a number of years by its component species, though its date may vary considerably. Sometimes a movement may be interrupted by unsuitable weather and be resumed again later, making two apparent waves in one year which correspond to one in other years....It seems then that certain species migrate together, advance stragglers of some accompanying the bulk movement of others, and that each species is ready for migration at approximately the same time each year, the exact date depending upon a favorable combination of meteorological conditions."

Mr. Stone's paper concludes with a tabulated summary of the arrival dates of 90 species for the years 1902–1907, based upon the records of 25 to 35 observers for each year, "all located within ten miles of the center of Philadelphia." The table gives under 'first arrival' the average date and extreme dates for the whole period, and under 'bulk arrival' the date for each year and the average date for the whole period. It is noticeable that the length of the interval between average 'first arrival' and 'average bulk arrival' varies markedly in different species. Thus, for 70 species for which the record is complete, the interval between 'first arrival' and 'bulk' is from 4 to 8 days in the case of 45 species, 9 to 15 days in the case of 19 species, and 16 to 30 days in the case of 6 species. The last 6 are all early migrants, and to some extent winter residents.

A vast amount of patient and painstaking labor, continued through many years, has been expended by Mr. Stone to reach the results here so clearly presented, showing that his interest in the subject is both deep and lasting; and he has well earned the hearty thanks and congratulations of all his fellow-workers in this field of research. It is to be hoped that his work and that of the other members of the Delaware Valley Ornithological Club will incite other local ornithological associations to similar effort.

We are not to infer, however, that all previous work on bird migration by individual observers has been in vain, and that our general conceptions of the average date of the spring arrival of birds based on the observations of isolated (as opposed to organized) observers is to any great extent

erroneous, or that the supposed rate of progress of migrant birds is not approximately correct, although, it must be granted, not yet grounded on satisfactory data and proper methods. The chances are that the inaccuracies due to faulty methods or insufficient data result in the main in approximately correct averages, the errors largely counterbalancing each other. Yet we have at present, it must be admitted, crude results as opposed to scientific accuracy.— J. A. A.

Birds of the New Haven Region.— 'A List of the Birds of the New Haven Region,' compiled by a Committee, forms Bulletin No. 1 of the New Haven Bird Club (pp. 32), issued in May of the present year. The Committee consists of six members of the Club,[1] with Dr. L. B. Bishop as Advisory Committee. The region is divided into five areas, which are described as regards their topography and ornithological features. Following this preliminary matter is the annotated list, numbering 217 species, with a supplementary list of nearly a hundred species which have become extinct or are so rare as not to be ordinarily found within the region. The list is intended as "a brief and simple guide to the birds of the New Haven region," to serve as an aid to "teachers and others interested in knowing what birds to look for and to a certain extent when and where to look for them." It is based for the most part on the field notes of the members of the committee taken within the last few years, and thus may be regarded as reflecting present conditions. The annotations relate to the seasons of occurrence, abundance, and special haunts of the species within the region. The list will no doubt well serve its purpose, and is a commendable piece of work, as regards both its intent and execution.— J. A. A.

'A Check List of Rhode Island Nesting Birds.'— This 'List'[2] is based on records covering the period 1890 to 1908, and comprises only species known to breed in the State. These number 104, with a supplemental list of 15 others that have been reported as breeding in Rhode Island, but of which the Commissioners have been unable to find "accurate or satisfactory nesting data." It is not assumed that no others than those admitted to the main list breed in the State, it being thought best to have the list accurate as far as it goes. Several of the species given in the second list doubtless formerly bred in the State, if they do not at the present time. The list is printed on only one side of the paper, and the annotations consist of a definite breeding record, with the authority therefor, and the situation of the nest and number of eggs, without any remarks on the abundance

[1] Freeman F. Burr, Chairman; Philip L. Buttrick, Alfred W. Honywill, Jr., Dwight B. Pangburn, Aretas A. Saunders, and Clifford H. Pangborn.

[2] A Check List | of | Rhode Island Nesting Birds] with| Data | — | Published by | The Commissioners of Birds | Charles H. Remington, Chairman | Providence Co. | William H. Thayer | Bristol Co. | Alexander O'D. Taylor | Newport Co. | Edwin R. Lewis | Washington Co. | W. Gordon Reed, 2nd | Kent Co. | — | Copyright 1908 | By C. H. Remington — 16 mo., ll. 26, one half-tone plate.

or manner of occurrence in the State as a whole. The nomenclature is that of the A. O. U. Check-List, brought down to include the changes adopted in the Fourteenth Supplement, published in July of the present year.— J. A. A.

Penard's Birds of Guiana.[1]— The authors of the present work (which, unfortunately for English readers, is written in the Dutch language) resided for twelve years in Dutch Guiana and made a large collection of the birds of that region. They therefore write from personal knowledge of the birds, and are able to give much first-hand information of their habits, about which little has heretofore been recorded.

An introduction of about forty pages gives a general account of the local distribution of many of the species, their breeding habits and migrations. The remainder of the first volume treats, in systematic sequence, of the species, from the Grebes to the Cuckoos. There are keys to the higher groups, and descriptions of the species (in small type), followed by a more or less full account of their habits and local distribution.

Volume II, which will contain the remainder of the Picariæ and the Passeres, is now ready for the press, but (we are privately informed) will not be published until proceeds from the first volume become available.— J. A. A.

Forbes's Statistical Study of the Mid-Summer Bird Life of Illinois.[2]— This is a summary of some of the more general results of statistical observations made in 1907, in the southern part of the State in June, in the central part in July, and in the northern part in August, by two field observers, Messrs. A. O. Gross and H. A. Ray. The character of the field work is stated, the purpose of which is to obtain "a better knowledge of the significance of birds in the economy of nature." The statistics here presented are of much interest, as are the conclusions derived from them, which a fuller survey may or may not seriously modify. The work here detailed should be greatly extended, and carried on by a sufficient number of competent field observers to enable surveys to be conducted simultaneously in different parts of the State, so as to avoid the necessity of comparing seasonally unlike data, as in the present instance. It is work eminently well worth doing, and becomes trustworthy in proportion to its thoroughness and comprehensiveness, and which we hope to see undertaken energetically on a large scale. The present is an excellent beginning, and the

[1] De Vogels van | Guyana | (Suriname, Cayenne en Demerara) | Door | Frederik | Paul Penard | en | Arthur Philip Penard | [Volume I] Uitgave van | Wed. F. P. Penard | Paramaribo | — No date = April, 1908. 8vo, pp. xliii + 588, with 173 half-tone cuts in text. Price, $5.00; postage 30 cents additional. Orders for the work may be addressed to De Wolfe & Fiske Co., 16–20 Franklin St., Boston, Mass.

[2] The Mid-summer Bird Life of Illinois: A Statistical Study. By Professor S. A. Forbes, University of Illinois. Amer. Nat., Vol. XLII, No. 500, August, 1908, pp. 505–519.

generalizations here presented indicate that certain facts and conditions, of which experienced field ornithologists may feel conscious, may eventually be established on a scientific basis.

Professor Forbes points out that from the data thus far collected it is evident that there is a numerical increase in birds from the northern part of the State southward, in the ratio of 133 birds in the central part, and 181 in the southern, to 100 in the northern part. While there is undoubtedly a southward numerical increase, it must be noted that here June in the south is compared with August in the north, which is hardly a fair basis. It would hence be of interest to repeat the reconnaissance, reversing the order. This would furnish a basis for the double comparison of north with south — in June *and* August — and for comparing two censuses of the same region at opposite ends of the breeding season. As is well known, August is the season of moult, when birds are comparatively quiet and seek seclusion, and when, in the latitude of northern Illinois, there is generally a dearth of birds in comparison with June. Some indeed have either begun to move south, or have gathered into loose flocks and are of irregular distribution, and some even occupy different haunts as compared with June. Again, in repeating this reconnaissance in inverse order in respect to season, it would be well — almost important — to employ the same observer as before, since different observers differ greatly in the matter of expertness, and in the taking of such a census all the conditions should be as similar as possible.

The statistics presented respecting the Meadowlark are of exceeding interest, but we do not feel so sure that the inductions based thereon are satisfactory. It is of interest to know that there are many more Meadowlarks apparently in southern Illinois than in northern Illinois, but the greater abundance in pasture lands in northern Illinois in August as compared with their numbers in meadows, than in southern Illinois in June, may be in large part seasonal, since the preferred nesting grounds of Meadowlarks are meadows, while later in the season their dispersal is more general and includes pasture and other open lands as well as meadows.

If we were to make any formal criticism on Professor Forbes's paper, it would be to say that while the work here reported upon is well worth doing, and has been well planned, the data from a single season's work of two observers are too few to warrant the expectation that generalizations from them can be otherwise than premature, since observations made in August in northern Illinois, cannot be satisfactorily compared with others made in June in southern Illinois, since the two periods relate to two very different seasons in the cycle of avian activities.— J. A. A.

Warren on Birds of Northwestern Colorado.[1]— An itinerary, illustrated with a map, is given of the author's route in northwestern Colorado in the spring and summer of 1907. Although the main purpose of the

[1] Northwestern Colorado Bird Notes. By Edward R. Warren. The Condor, Vol. X, pp. 18–26, Jan. 1908.

journey was to collect the mammals of the region, considerable attention was given to the birds, as attested by the present list of 93 species collected or observed during the trip, mainly in Grand, Routt, and Eagle counties. Among the interesting records is that of a small colony of Bobolinks (*Dolichonyx oryzivorus*) at Steamboat Springs, in the eastern part of Routt County.— J. A. A.

Howell on Winter Birds of Northern Louisiana.[1] — This is a briefly annotated list of about 70 species and subspecies, and adds 7 to the list of Louisiana birds. It is especially welcome as furnishing definite information respecting the distribution and abundance of the winter birds of a little known district.— J. A. A.

Birds of Yellowstone Park.— In the Annual Report of the Superintendent of the Yellowstone Park for 1907 (pp. 15–23) Dr. T. S. Palmer contributes the results of his observations on the birds of Yellowstone Park made during parts of August and September, 1907. There are formal notes on about seventy species. Suggestions are made for the increase and better protection of the birds about the hotels and permanent camps by the prohibition of cats and by providing nesting boxes and shallow pans of water where the birds can bathe and drink.— J. A. A.

Carriker on New Birds from Costa Rica.[2]— The new species are *Formicarius castaneiceps* and *Sporophila crissalis*, and seven other species are recorded for the first time from Costa Rica.— J. A. A.

Mrs. Miller's 'The Bird Our Brother.' — The purpose of the present work [3] is eminently commendable, and its selections are in the main from excellent sources, for it is mainly composed of extracts from a multitude of writers, woven together with such comment as Mrs. Miller's wide experiences with birds and her sympathies suggest. The book is a popular exposition of bird traits "intended solely for the 'general reader'.... It is simply an earnest attempt.... to present him [the bird] as an individual, a fellow pilgrim in this fair world of ours." It consists of fourteen chapters, treating of 'individuality,' 'intelligence,' 'language,' 'altruism,' 'education,' 'affection,' 'courtship,' 'home,' 'amusements,' 'means of defense and attack,' 'odd ways,' 'equipment,' 'usefulness to us,' and 'conclusion.' These headings will serve to give a general idea of the method of treatment,

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[1] Notes on the Winter Birds of Northern Louisiana. By Arthur H. Howell. Proc. Biol. Soc. Washington, Vol. XXI, pp. 119–124, April 11, 1908.

[2] Brief Descriptions of some new Species of Birds from Costa Rica and a record of some Species not hitherto recorded from that Country. By M. A. Carriker, Jr. Ann. Carnegie Museum, Vol. IV, pp. 301, 302, April 1, 1908.

[3] The Bird Our Brother | A Contribution | to the Study of the Bird | as He is in Life | By | Olive Thorne Miller | [Seal] Boston and New York | Houghton, Mifflin and Company | The Riverside Press, Cambridge | 1908 — 16 mo., pp. xii + 331. $1.25 net.

and the wide range offered for quotations on the several topics mentioned. An appendix containing 285 titles referred to by numbers in the text, gives the sources drawn upon. Naturally the same author is cited in many different connections, so that some twenty of the principal sources form the basis of nearly two hundred of the references.

It may seem unkind to say that a careful reading of this very interesting book has suggested a modification of the subtitle, to read, in place of "the bird as he is in life," the bird as the author would have him in life, since none of the bad traits of birds,— it must be admitted that all birds are not wholly angelic, but share with man some of his bad traits as well as all his good ones,— seem to be passed over in silence or with a statement to the effect that the species has been woefully slandered by "sensational writers." Very few birds are really more injurious than beneficial to man, and these are indirectly rather than directly so, through their destruction of other birds of greater use to man than they are themselves. The author's lapses, which are few, are on the side of friendship to the bird, and do not detract materially from the usefulness of her book, which, besides affording pleasant and instructive reading to a host of bird lovers, will exert a much needed influence in behalf of the birds.— J. A. A.

CORRESPONDENCE.

Membership Conditions in the A. O. U.

EDITORS OF 'THE AUK': —

Dear Sirs: — I question the wisdom of the rule or by-law of the A. O. U. which limits the number of "fellows" and the number of "members." It seems to me that this is unjust, unreasonable and un-American from every point of view; though there may be good reasons for it which I do not understand, certainly none have ever come to my notice. It seems to me that when the work of a "member" has reached a certain standard of importance he should be advanced to a "fellow" — this standard, of course, to be judged and determined by the Board of Fellows who elect. From my point of view there are several men in the class of "fellows" whose work, whose renown or whose service to ornithology is far inferior to that of several "members" who cannot be advanced to "fellows" because that class is full, and I ask if there is any justification in a limited class of "fellows" sufficient to offset so unjust and unsatisfactory a condition as this appears to be?

Limiting the class of "members" also works a like injustice. The class of "associate members" is open to anyone who has $3.00 per annum

to pay. He is not required to know so much as a chickadee from a crow. It is the first step,— in short the primary class of our National Ornithological Association.

Now why should an "associate" be barred from an advance to the "members" class after his services to the cause of Ornithology have become recognized as of some degree of importance sufficient to entitle him to advancement? I doubt if anyone can show but that there are "associate members" just as much entitled to be advanced to "members" as some of those who have received such advancement? Is it a good policy to keep a man years in the "associate" or primary class waiting for a vacancy in the "members" class, and when a vacancy occurs, he or his friends must put up a fight for it and if he wins it is at the expense of some others whose claim to advancement is as good or better than his own? That is why I resigned from the A. O. U. after a six or seven years' membership in the primary grade. I felt that I had been there long enough, yet to be advanced meant that I stood in the way of someone more entitled to it than I.

I would say make the standard of "fellows" and "members" as high as you like but leave room for all who attain it.

Yours very truly,

JOHN LEWIS CHILDS.

Floral Park, N. Y.
July 15th, '08.

[Mr. Childs, in transmitting the above letter for publication, expressed the desire to have it followed by such comment as the editors might wish to make. This gives an opportunity for explanations that may interest others who share Mr. Childs's point of view. He says, very truly, that there are men in the class of Fellows whose services to ornithology are far inferior to those rendered by many who are in the class of Members, a condition of affairs which seems to him as very unjust and unreasonable, though, he adds, there may be good reasons for it which he does not understand.

Mr. Childs objects to a limited membership; but it has long been recognized by societies of all classes — in art, literature and science — that membership is sought for and valued in direct proportion to its numerical limitations. Mr. Childs would have eligibility to Fellows in the A. O. U. determined by a "Board of Fellows," but such eligibility can be determined only by the establishment of a standard, and experience has long shown that a standard can be established *and maintained* only by declaring that certain classes of membership shall not exceed a certain number.

The condition complained of by Mr. Childs had its origin long ago, and is due to contingencies that were not foreseen. The American Ornithologists' Union was organized twenty-five years ago. The tremendous advancement in all departments of science during the last quarter-century is well known, not only in respect to discoveries and methods of work, but in respect to the number and training of those engaged in scientific

research. One unfamiliar with conditions in ornithology in this country twenty-five years ago cannot appreciate the greatness of the change. In consequence of this change the standards of admission to the higher grades of membership, not only in the A. O. U., but in other scientific societies with limited memberships, have also been raised. Twenty-five years ago the number of what would now be considered expert ornithologists was very small, and men who would not now be considered eligible to the present class of Members were accepted readily for the higher grade, being then, without question, among the fifty leading ornithologists of America.

It could not, however, be foreseen that men who were then promising and enthusiastic students of birds would later become absorbed in some other lines of research or that others had practically completed their career as ornithologists.

Aside from the purely honorary grades of membership, the American Ornithologists' Union was originally divided into Members (now Fellows) and Associates, the former limited to fifty, the latter numerically unlimited. Fifty for the former, in which there has always been one or more vacancies, seems still a reasonable limit, if membership in this class is to have any significance. Since then a grade of Members, between Fellows and Associates, has been established, limited to one hundred and, as in the case of Fellows, this limitation carries its implied distinction, a distinction which would be vague or wanting were the number unlimited.

It is hardly just to apply present day standards to conditions that prevailed a quarter of a century ago. Nor is the A. O. U. exceptional in regard to the conditions about which Mr. Childs offers complaint. Exactly the same conditions obtain in our own National Academy of Sciences and in Foreign Academies, where the candidates for membership far exceed (sometimes by 75 per cent.) the vacancies, and greatly excel in scientific attainments many who have long been honored members, and who were the peers of their colleagues when elected.— Edd.]

NOTES AND NEWS.

J. V. Barboza du Bocage, an Honorary Member of the American Ornithologists' Union, died recently at his home in Lisbon, at the age of 84 years. For many years he was Professor of Zoölogy in the Royal Polytechnic Institute and Director of the National Zoölogical Museum at Lisbon. He was especially known for his investigations in African ornithology, to which he contributed a long series of papers.

His 'Ornithologie d'Angola,' published in two parts (1877 and 1881) is a work of about 600 pages, with 10 colored plates, and gives a very complete résumé of the avifauna of the Portuguese Possessions in Africa. He also wrote numerous papers on African mammals and reptiles. It is

with the literature of African ornithology, however, that his name is most intimately interwoven.

FRANCIS HUNTINGTON SNOW, an Associate of the American Ornithologists' Union, died at Bellfield, Wisc., September 20, 1908, at the age of 68 years. He was born in Fitchburg, Mass., June 29, 1840, was graduated from Williams College in 1862, and from the Andover Theological Seminary in 1866. He was a member of the faculty of the State University of Kansas from the founding of the University in 1866, became president of the faculty in 1899, and was chancellor from 1890 to 1901. He filled the chair of mathematics and natural science from 1870 to 1890, and since 1901 that of organic evolution, systematic entomology and meteorology. He received the degree of Ph. D. from Williams College in 1881, and that of LL. D. from Princeton in 1890. The Snow Hall of Natural History at the University of Kansas was named in his honor. He was well known for his contributions to systematic and economic entomology, and for his interest in Kansas ornithology. He published his first catalogue of Kansas birds in 1872 — the first list of the birds of the State — and revised editions of it at frequent intervals, the fifth and last appearing in 1903 (reviewed in this Journal, XX, 1903, p. 317). In this last edition he excluded all species which could not be verified as birds actually captured in Kansas since 1886, the list as thus restricted including 342 species and subspecies. The following year, however, he added (in 'The Auk') five others; in 1906, two more; and in 1907 ten more, raising the total to 359. In addition to his own original contributions in various lines of natural history, he did much through his training of students at the University to promote biological research.

A NEW department has recently been established at the University of California to be known as the California Museum of Vertebrate Zoölogy. This has been made possible through the generosity of Miss Annie M. Alexander, of Oakland, Cal., who is an alumnus of the University and deeply interested in the vertebrate fauna of North America, and especially in that of California, which is thus far poorly represented in the museums of the State. A feature of the new museum will be the accumulation of material for original research, the collection of ecological data, and the representation of leading types by mounted groups. It is planned to have at least two skilled collectors in the field in the interest of the Museum. The University will provide a suitable building for the reception and installation of the material. Dr. Joseph Grinnell has been selected as Curator, and active field work was begun early in the present year. This undertaking cannot fail to yield results of great importance in a field as yet very imperfectly developed.

A PRACTICAL guide for those who wish to protect wild birds and attract them to their grounds has been issued by Witherby & Co., London, under

the title 'How to Attract and Protect Wild Birds.' It is an English translation of Martin Hiesemann's "Der gesammte Vogelschutz,' which was prepared with the assistance of Baron von Berlepsch, and faithfully represents his ideas and the results of his long-continued experiments at his experiment station at Seebach. It is illustrated with views of different kinds of nesting-boxes, methods and means of feeding birds in winter, shelter-woods for birds, etc., and makes a small book of about one hundred octavo pages. It is based on careful research, and is beyond question the best manual of the subject extant. The publishers have arranged to supply the work to American bird protectors through the National Association of Audubon Societies, 141 Broadway, New York City.

THREE new Reservations for the protection of birds were established during August, 1908, by executive order of President Roosevelt, at the request of the National Association of Audubon Societies. These are: (1) The Key West Reservation in the Gulf of Mexico, including all of the keys and islands of the Florida Keys group. (2) The Klamath Lake Reservation in Oregon and California, including Lower Klamath Lake and its islands and contiguous marsh and swamp lands. (3) Lake Malheur Reservation, including Lakes Malheur and Harney and their connecting waters. The setting aside of these extensive reservations is a most important step for the preservation of our rapidly decreasing water-fowl, since they embrace some of the most extensive and important breeding stations of these birds within the control of the United States.

THE THIRD ANNUAL MEETING of the National Association of Audubon Societies will be held at the American Museum of Natural History, New York City, on October 9, 1908, at 2 P. M., for the election of officers and the transaction of such other business as may be necessary. The term of office of six directors, class of 1908, expires at this meeting, and their successors will be chosen. These directors are Ruthven Deane, Mrs. C. Grant La Farge, Frank M. Miller, Theodore S. Palmer, Abbott H. Thayer, and John E. Thayer. At the close of the business meeting an address will be given by Mr. William L. Finley, the Northwest Field Agent of the Association, on the results of his summer's work, under the title, 'On the Trail of the Plume Hunters.'

THE Twenty-sixth Stated Meeting of the American Ornithologists' Union will be held in Cambridge, Mass., beginning on the evening of November 16, 1908. The evening session will be for the election of officers and members, and for the transaction of routine business. Tuesday and the following days of the session will be for the presentation and discussion of scientific papers and will be open to the public. Members intending to present communications should forward the titles to the Secretary, Mr. John H. Sage, Portland, Conn., so as to reach him not later than November 12.

INDEX TO VOLUME XXV.

[New generic, specific, and subspecific names are printed in **heavy-faced** type.]

ACANTHIS, 399.
flammea, 395.
linaria, 72, 280, 395, 439.
Acanthopneuste borealis, 398.
borealis kennicottii, 398.
Accipiter atricapillus, 82, 277, 323.
atricapillus striatulus, 433.
cooperi, 213, 417, 433, 441, 452, 458, 464.
velox, 199, 433, 441.
velox rufilatus, 398.
Actitis, 391.
macularia, 59, 70, 179, 198, 417, 432, 458, 463.
Actochelidon, 399.
Actodromas, 366.
acuminata, 366.
bairdii, 70, 178, 234.
fuscicollis, 178, 198, 327, 328.
maculata, 157, 178, 284, 431.
minutilla, 178, 431.
Adams, Charles C., the ecological succession of birds, 109–153.
Æchmophorus clarkii, 352.
occidentalis, 156, 428.
Ægialeus, 391.
Ægialitis meloda, 180.
meloda circumcincta, 180, 352.
nivosa, 180, 484.
semipalmata, 70, 157, 180, 438.
vocifera, 464.
Ægiothus, 399.
Aëronautes melanoleucus, 459.
Æthia, 357.
cristatella, 357.
pusilla, 357.
pygmæa, 357.
Agelaius phœniceus, 60, 202, 280, 419, 466.
phœniceus arctolegus, 29, 72, 398.
phœniceus caurinus, 435.
phœniceus fortis, 28, 466.
phœniceus sonoriensis, 460.
Aix sponsa, 417, 430, 450.
Ajaia ajaia, 173.
Alauda arvensis, 287.
rubescens, 384.
Albatross, Short-tailed, 429.
Alca, 399.
cristatella, 357.
psittacula, 356.
pygmæa, 357.
Alcedo, 399.
guttata, 373.
maxima, 373.
Alcella, 357.
Alle alle, 215.
Allen, Francis H., summer birds of the Green Mountain Region of Southern Vermont, 56–64; *Larus kumlieni* and other northern gulls in the neighborhood of Boston, 296–300.
Allen, Glover M., rare New England birds, 233.
Allen, J. A., the generic names *Mycteria* and *Tantalus* of Linnæus, 1758, 37, 38; the case of *Hortulanus* Vieillot, 223; the case of *Strix* vs. *Aluco*, 288–291; *Columbina* vs. *Chæmepelia*, 301–306.
Allison, Andrew, see Beyer, Geo. E.

Aluco, 288–290.
alba pratincola, 291.
pratincola, 370.
Aluconidæ, 370.
Amazona boqueti, 310, 311.
imperialis, 310, 311.
martinicana, 311.
violaceus, 311.
American Ornithologists' Union, report of Twenty-fifth Stated Meeting, 74–80; adoption by, of Article 30 of the International Code of Zoölogical Nomenclature, 105; notice of work of Committee on Nomenclature, 341; Revised Code of Nomenclature, announced as in press, 341; Fourteenth Supplement to A. O. U. Check-List, 343–399, announcement of Twenty-sixth Stated Meeting, 498.
Ammodramus, 399.
australis, 378.
henslowi, 204.
maritimus fisheri, 395.
maritimus macgillivrayi, 395.
maritimus peninsulæ, 395.
nelsoni, 84, 318, 453, 475.
nelsoni subvirgatus, 319.
Ampelidæ, 381.
Ampelinæ, 354.
Ampelis, 381.
cedrorum, 32, 48, 61, 207, 214, 381, 421, 436.
garrulus, 45–48, 381, 436.
Amphispiza belli canescens, 349.
belli cinerea, 379.
belli nevadensis, 379.
bilineata deserticola, 460, 483.
nevadensis, 379.
nevadensis canescens, 349.
nevadensis cinerea, 379.
Anas bicolor, 362.
boschas, 213, 313, 360, 430, 462.
boschas spilogaster, 398.
circia, 361.
Anas clangula, 362.
ferruginea, 361.
fulva, 262.
labradoria, 362.
marila, 361.
obscura, 361, 450, 462.
obscura rubripes, 283, 352, 361.
platyrhynchos, 360, 457.
querquedula, 361.
rubripes, 361.
vallisneria, 346.
Ani, 443.
Groove-billed, 444.
Anodorhynchus pupurascens, 239.
Anser albifrons gambeli, 70, 80, 431.
brachyrhynchus, 346, 390.
fabalis, 390.
segetum, 390.
Anthus pensylvanicus, 51, 73, 397, 423, 437.
rubescens, 384, 397.
spinoletta pensylvanicus, 397.
spraguei, 33.
Antrostomus, 374.
carolinensis, 418, 479.
vociferus, 418.
Aphelocoma californica, 94.
woodhousei, 460.
Aquila chrysaëtos, 71, 251–268, 323, 433, 442, 464.
fulvus, 267.
heliaca, 267.
niger, 267.
Ara **atwoodi**, 310.
erythrura, 239, 240.
tricolor, 239.
Aramus giganteus, 364.
vociferus, 364.
Archibuteo ferrugineus, 452.
lagopus, 353.
lagopus sancti-johannis, 71, 277, 284, 442.
Ardea duboisi, 240.
egretta, 451, 473.
herodias, 431.
herodias fannini, 438.

Ardea herodias **treganzai**, 291–296, 457.
minuta, 364.
nycticorax, 364.
virescens, 451.
wuerdemanni, 352.
(Dichromanassa) pealei, 352.
Ardetta, 364.
exilis, 174, 451, 463.
Arenaria interpres, 180.
interpres morinella, 368.
melanocephala, 157, 432.
mǫrinella, 157, 368.
Aristonetta, 346.
Arnow, Isaac F., American Woodcock breeding at Saint Marys, Ga., 220; Masked Duck in Chatham County, Ga., 472; American Avocet in Camden Co., Ga., 473; Lark Sparrow in Camden Co., Ga., 476; Bachman's Warbler in Camden Co. and breeding in Chatham Co., Ga., 479; Cape May Warbler in Camden Co., Ga., 417.
Arquatella maritima couesi, 366
maritima ptilocnemis, 366.
Asio, 290, 392.
accipitrinus, 25, 278, 370, 433, 443.
asio, 290.
flammeus, 370.
magellanicus algistus, 347.
magellanicus heterocnemis, 347.
magellanicus icelus, 392.
magellanicus lagophonus, 392.
magellanicus occidentalis, 393.
magellanicus virginianus, 392.
magellanicus wapacuthu, 393.
wilsonianus, 25, 56, 278, 442.
Astragalinus psaltria hesperophila, 460.
tristis, 30, 61, 203, 419.
tristis pallidus, 30.
tristis salicamans, 435.
Astur, 369.
atricapillus, 369.
Astur atricapillus striatulus, 369.
Asyndesmus lewisi, 374.
torquatus, 374, 434, 453.
Atthis, 347.
Audubon, John James, an unpublished letter of, to his family, 166–169; unpublished letters of introduction carried by him on his Missouri River Expedition, 170–173; copper-plates of his 'Birds of America; 401–413; the King Cameos of, 448–450.
Anderson, Rudolph M., an addition to the Birds of Iowa, 215.
Auk, The, index to Vol I–XVII, notice of, 99.
Auklet, Cassin's, 155, 160, 161, 164, 165.
Paroquet, 485.
Rhinoceros, 159, 429.
Tufted, 155.
Auriparus flaviceps, 461.
Avocet, American, 473.
Aythya, 361.
affinis, 438, 463.
americana, 430.
collaris, 234, 438, 463.
marila, 430.
vallisneria, 80, 430, 463.

Bæolophus atricristatus sennetti, 350.
bicolor, 212, 322, 424.
bicolor texensis, 355.
inornatus griseus, 461.
inornatus restrictus, 355.
wollweberi annexus, 397.
Bailey, H. H., Swainson's Warbler and Chuck-will's-widow breeding north of James River, Virginia, 478.
Bangs, Outram, a new name for the Texan Barred Owl, 316; notice of his paper 'On certain Costa Rican Birds,' 334.
Barbour, Robt., a large migration of Hawks, 82.

Bartramia longicauda, 59, 179, 213, 328, 463, 473, 484.
Basileuterus, 354.
bellii, 354.
culicivorus brasherii, 354.
Beal, F. E. L., notice of his 'Birds as Conservators of the Forest,' 95; notice of his 'Birds of California in Relation to Fruit Industry,' Part I, 96.
Beard, Dan, notice of 'Dan Beard's Animal Book and Camp-fire Stories,' 100.
Beebe, C. William, notice of his 'Geographic Variation in Birds with especial reference to the effects of Humidity,' 90–93; notice of his paper on 'Seasonal Changes of Color in Birds,' 335.
Bent, A. C., summer birds of Southwestern Saskatchewan, 25–35.
Bergut, 267.
Berkute, 267.
Beyer, Geo. E., Andrew Allison, and H. H. Kopman, list of the birds of Louisiana, 173–180, 439–448.
Biological Survey, notice of the work of, 246.
Bittern, American, 9, 14, 70, 135, 174, 197, 431, 463.
Least, 15, 174, 451, 463.
Blackbird, Brewer's, 29, 435, 460.
Red-winged, 1, 2, 7, 14, 60, 72, 114, 202, 280, 419, 466, 482.
Rusty, 14, 72, 202, 231, 280.
Thick-billed, 28.
Yellow-headed, 28, 466.
Blasipus, 389.
Blasius, Rudolph, death of, 104; obituary of, 248.
Bluebill, 430.
Bluebird, 1, 7, 10, 14, 64, 88, 94, 191, 213, 424, 467.
Arctic, 454.
Bluebird, Azure, 388.
Mountain, 55.
Western, 94, 438.
Bluethroat, Red-spotted, 226.
Bobolink, 3, 9, 15, 28, 60, 186, 202, 222, 280, 335, 419, 493.
Bob-white, 59, 198, 417, 432, 439, 464.
Bocage, J. V. Barboza du, obituary of, 496.
Bombycilla, 381.
Bombycillidæ, 381.
Bonasa, 391, 392.
umbellus, 59, 198, 286, 464.
umbellus sabini, 432.
umbellus togata, 71, 432.
Bonhote, J. Lewis, notice of his 'Birds of Britain,' 243.
Botaurus, 363.
lentiginosus, 70, 174, 197, 431, 463.
Bowles, J. H., capture of the White-winged Dove in the State of Washington, 82; lead poisoning in ducks, 312; early nesting records from Washington State, 323.
Brachyramphus, 345.
brevirostris, 357.
hypoleucus, 345.
kittlitzii, 357.
marmoratus, 156, 429.
Braislin, William C., Nelson's Sparrow (*Ammodramus nelsoni*) on Long Island, N. Y., 84; notice of his 'A List of the Birds of Long Island, New York,' 93.
Brant, Black, 431, 473.
Silver, 451.
Branta bernicla, 352, 463.
canadensis, 70, 431, 463.
canadensis hutchinsi, 70, 431.
canadensis occidentalis, 438.
nigricans, 431, 473.
Bridge, Lidian E., *Protonotaria citrea* at Concord, Mass., 319; Mocking-

bird in West Medford, Mass., 320; *Chondestes grammacus* at Ipswich, Mass., 476.
British Birds (magazine), notice of, 243.
Brooks, Earle A., notes from West Virginia, 235–238.
Bubo arcticus, 372.
subarcticus, 372.
virginianus, 214, 392, 417, 443, 465.
virginianus algistus, 347.
virginianus arcticus, 347, 372, 453, 487.
virginianus heterocnemis, 347, 487.
virginianus occidentalis, 393.
virginianus pallescens, 433.
virginianus saturatus, 433.
virginianus subarcticus, 372.
Bubonidæ, 290, 370.
Bucephala albeola, 463.
Budytes flavus alascensis, 397.
flavus leucostriatus, 397.
flavus similima, 397.
Bunting, Black-throated, 454.
Indigo, 15, 61, 188, 206, 420, 453.
Lark, 32, 43, 467.
Lazuli, 43, 436.
Burr, Freeman F., and others, notice of their 'A List of the Birds of the New Haven Region,' 490.
Burnett, W. L., another Cañon Wren record for Colorado, 87.
Bush-tit, Lead-colored, 461.
Puget Sound, 437.
Buteo, 347.
antillarum, 269, 271.
buteo, 353.
borealis, 59, 199, 417, 441, 464.
borealis calurus, 433, 458.
borealis harlani, 214, 441.
borealis krideri, 199, 441, 452, 474.
Buteo insignatus, 470.
latissimus, 270, 271, 272, 273
lineatus, 214, 442, 464.
lineatus alleni, 442.
pennsylvanicus, 270, 271, 272, 273.
platypterus, 59, 199, 232, 269–271, 273, 417, 442, 452.
platypterus antillarum, 271.
platypterus **insolicola**, 273.
platypterus rivierei, 273.
swainsoni, 214, 433, 468–471.
Butorides spodiogaster, 336.
virescens, 59, 175, 417.
Butter-ball, 463.
Buturlin, S., Red-spotted Bluethroat of Alaska, 35–37.
Buzzard, Turkey, 315, 328, 458, 475.

Calamospiza melanocorys, 32, 43, 467.
Calcarius lapponicus, 72, 281.
lapponicus alascensis, 483.
ornatus, 30, 72, 84.
Calidris, 367.
arenaria, 367.
leucophæa, 367.
Callothrus, 377.
Calocitta formosa, 341.
Catharus melpomene costaricensis, 334.
Calypte costæ, 459.
Cameron, E. S., the birds of Custer and Dawson Counties, Montana, 39–56; observations on the Golden Eagle in Montana, 251–268.
Campephilus principalis, 445.
Camptolaimus, 362.
Camptorhynchus, 362.
labradoria, 362.
Camptostoma, 376.
imberbe, 376.
Canachites franklini, 438.
Caprimulgus carolinensis, 201, 214, 374.
griseatus, 336.

Caprimulgus vociferus, 201.
Caracara, Audubon's, 442.
Carbo auritus, 359.
Cardinal, 206, 318, 420.
Cardinalis cardinalis, 206, 420.
cardinalis magnirostris, 396.
Carpodacus mexicanus frontalis, 96, 460.
purpureus, 61, 202, 236, 419.
purpureus californicus, 435.
Carriker, M. A., Jr., notice of his 'Descriptions of new birds from Costa Rica,' etc., 493.
Carter, Mrs. Isabel Paddock, obituary of, 104.
Casarca casarca, 361.
ferruginea, 361.
Cassinia, see Delaware Valley Ornithological Club.
Casuarius lydekkeri, 240.
novæ-hollandiæ, 240.
Catbird, 9, 15, 34, 52, 62, 211, 423.
Catharacta, 389.
Catharista, 399.
urubu, 199, 417, 440.
Cathartes, 392.
aura, 232, 315, 328, 369, 417, 432, 440, 475.
aura septentrionalis, 199, 369, 458.
burrovianus, 353.
septentrionalis, 369.
Catherpes mexicanus conspersus, 87, 226, 461.
mexicanus poliopterus, 397.
Catoptrophorus, 367.
semipalmatus, 368.
semipalmatus inornatus, 368.
Cedar-bird, 1, 2.
Centurus carolinus, 201, 418, 447, 465.
uropygialis, 458.
Ceophlœus, 373.
pileatus, 418, 447.
pileatus abieticola, 60, 434, 475.
Cepphus carbo, 352.
Cepphus columba, 155, 429.
Cerchneis sparverius, 199.
sparverius paulus, 347.
Cerorhinca monocerata, 155, 156, 429.
Certhia familiaris americana, 63, 212, 424.
familiaris occidentalis, 437.
Ceryle, 399.
alcyon, 26, 59, 199, 418, 433, 445, 458.
Chæmepelia, 301–306, 399.
Chætura chapmani, 334.
cinereicauda, 334.
cinereiventris phæopygos, 335.
gaumeri, 334.
pelagica, 60, 201, 317, 418.
spinicauda fumosa, 335.
vauxi, 335, 434.
Chamæa fasciata rufula, 351.
Chapman, Frank M., notice of his expedition to southern Florida for bird group material, 249, 342.
Charadrius dominicus, 180, 327, 438.
Charitonetta albeola, 430.
Chat, Long-tailed, 50, 461.
Yellow-breasted, 14, 19, 211, 231, 423.
Chaulelasmus streperus, 234, 325, 430.
Chelidonaria, 350.
urbica, 350.
Chen cærulescens, 451.
hyperborea, 70, 431, 463.
rossi, 451.
Cherrie, George K., notice of paper on birds from the Island of Trinidad, 334.
Chewink, 281.
Chickadee, 21, 63, 136, 139, 467.
Acadian, 351.
Bailey's Mountain, 351.
Carolina, 212, 424.
Chestnut-backed, 437.
Florida, 351.
Hudsonian, 63, 73.

Chickadee, Long-tailed, 34, 54, 73, 467.
Oregon, 437.
Childs, John Lewis, Krider's Hawk and the English Sparrow nesting together, 474; Membership conditions in the A. O. U., 494.
Chlorospingus zeledoni, 334.
Chondestes grammacus, 204, 236, 476.
grammacus strigatus, 39.
Chordeiles acutipennis texensis, 459
virginianus, 26, 60, 201, 418.
virginianus henryi, 434, 465.
virginianus hesperis, 347.
virginianus sennetti, 26.
Chroicocephalus, 389.
Chuck-will's-widow, 201, 214, 418, 478.
Ciconia americana, 363.
Cinclus, 385.
cinclus, 385.
hydrophilus, 385.
mexicanus, 51, 385, 437.
mexicanus unicolor, 385.
Cinerosa, 396.
Circus hudsonius, 213, 432, 441, 468.
melanoleucus, 336.
Cistothorus stellaris, 211, 229, 320–322, 423.
Clangula, 362.
clangula americana, 69, 217, 430.
islandica, 217, 430.
Clark, Austin Hobart, the Macaw of Dominica, 309–311.
Coccothraustes vespertinus montanus, 187.
Coccyzus americanus, 199, 418, 444.
americanus occidentalis, 433.
erythrophthalmus, 26, 59, 199 214, 445.
Cœligena, 374.
Colaptes auratus, 418, 447.
auratus luteus, 26, 60, 71, 201, 418, 448, 465, 484.
Colaptes cafer collaris, 26, 453.
cafer saturatior, 434.
chrysoides, 448.
Colinus virginianus, 59, 198, 417, 432, 439, 464.
virginianus insularis, 391.
Columbigallina passerina terrestris, 440.
Columbina, 301–306, 399.
campestris, 301.
cabocolo, 301, 305.
griseola, 301–306.
strepitans, 301, 305.
Columba asiatica, 368.
carolinensis, 368.
cinnamomina, 302.
fasciata, 432.
macroura, 368.
minuta, 301–304.
passerina, 301–306.
picui, 301, 305.
squamosa, 302.
talpacoti, 301, 302.
Columbula, 301.
Colymbi, 355.
Colymbidæ, 355.
Colymbus, 389.
auritus, 428.
holbœllii, 156, 428.
lumme, 356.
minor, 356.
ruficollis, 356.
stellatus, 356.
Compsothlypis americana, 421.
americana ramalinæ, 190, 209, 396.
americana usneæ, 62.
Contopus, 375.
richardsonii, 434, 466.
richardsonii saturatus, 394.
virens, 60, 419, 465.
Conuropsis, 373.
carolinensis, 373.
Conurus, 373.
carolinensis, 373, 443.
Cooke, Wells W., the Horned Lark

in Georgia, 318; the Nelson Sparrow in Georgia and Florida, 318; Acadian Sharp-tailed Sparrow in Georgia and Florida, 319; the Kentucky Warbler in Vermont, 320; averaging migration dates, 485.
Coot, American, 14, 177, 213, 218, 431, 463.
Cormorant, Baird's, 155, 156, 157, 160, 161, 162, 163, 164, 165, 166, 430.
Brandt's, 155, 156, 163, 164, 429.
Double-crested, 69, 294, 325.
Violet-green, 438.
White-crested, 155, 158, 159, 160, 162, 164, 165, 429.
Corvus brachyrhynchos, 60, 202, 419, 434, 466.
brachyrhynchos caurinus, 394.
brachyrhynchos hesperis, 28, 348, 394.
caurinus, 160, 394, 435.
corax clarionensis, 394.
corax principalis, 160, 434.
corax sinuatus, 71.
cornix, 348.
frugilegus, 348.
ossifragus, 279.
Coturnicops, 364, 391.
noveboracensis, 364.
Coturniculus, 399.
bairdi, 31, 39.
henslowi, 230.
savannarum australis, 378.
savannarum passerinus, 203, 378, 466.
savannarum perpallidus, 39.
Court, Edward J., Treganza Blue Heron, 291–296.
Cowbird, 7, 14, 28, 71, 202, 229, 435, 466.
Dwarf, 460.
Cractes, 394.
Crane, Little Brown, 70, 431, 451, 463.
Crane, Sandhill, 176, 431, 463.
Whooping, 176, 463, 484.
Crecisceus, 365.
jamaicensis, 365.
Creeper, Brown, 4, 8, 63, 212, 424.
Tawney, 437.
Crolius, Anne A., a Prothonotary Warbler in Central Park, New York City, 320.
Crossbill, American, 61, 72, 164, 202, 435.
Bendire's, 394.
Red, 72, 318.
White-winged, 10, 134, 139, 196, 203, 280, 324.
Crotophaga ani, 443.
sulcirostris, 444.
Crow, American, 1, 7, 60, 114, 202, 419, 434, 466.
California, 28.
Clarke's, 222, 318.
Fish, 279.
Hooded, 348.
Northwest, 160, 166, 435.
Western, 348.
Crymophilus fulicarius, 365.
Cryptoglaux, 371.
tengmalmi richardsoni, 235, 371, 433.
Cuckoo, Black-billed, 15, 26, 59, 199, 214, 445.
California, 433.
Yellow-billed, 15, 199, 418, 444.
Curlew, Eskimo, 179, 364.
Hudsonian, 157, 160, 179, 432.
Long-billed, 234, 364.
Cyanecula, 388.
suecica, 388.
suecica robusta, 388.
Cyanocitta cristata, 60, 94, 186, 202, 466.
cristata florincola, 419.
stelleri, 434.
stelleri borealis, 394.
stelleri carbonacea, 348.
Cyanolæmus, 374.
clemenciæ, 374.

Cyanomyia salvini, 348.
Cyanospiza, 380.
amœna, 43, 436.
cyanea, 61, 188, 420, 453.
Cyanosylvia, 388.
suecica, 35, 36.
suecica robusta, 35, 36, 388.
dicessa, 36.
suecica pallidogularis, 36
Cyclorrhynchus, 356.
psittaculus, 356.
Cymochorea, 345.
Cymodroma, 338.
Cynanthus, 374.
latirostris, 375.
Cypseloides niger borealis, 166, 434.

Dafila acuta, 213, 430, 463.
Daggett, Frank S., capture of the American Goshawk and Harris's Sparrow near Chicago, Ill., 82.
Dawson, William Leon, the bird colonies of the Olympiades, 153–166, new and unpublished records from Washington, 482–485.
Deane, Ruthven, an unpublished letter of John James Audubon to his family, 166–169; unpublished letters of introduction carried by John James Audubon on his Missouri River Expedition, 170–173; the Passenger Pigeon (*Ectopistes migratorius*) in confinement, 181–183; curious fatality among Chimney Swifts, 317; the copperplates of the folio edition of Audubon's 'Birds of America,' with a brief sketch of the engravers, 401–413; Turkey Buzzard (*Cathartes aura*) in northern Illinois, 475; destruction of English Sparrows, 477.
Dearborn, Ned, notice of his 'Catalogue of a Collection of Birds from Guatemala,' 240.
Delaware Valley Ornithological Club eighteenth annual meeting of, 250; review of 'Proceedings' of, 335.
Dendragopus obscurus fuliginosus, 432.
Dendrocygna, 362.
bicolor, 362, 485.
fulva, 362.
Dendroica æstiva, 33, 50, 73, 159, 209, 422, 436, 467.
æstiva brewsteri, 350.
auduboni, 436, 461.
blackburniæ, 6, 62, 210, 422.
cærulescens, 5, 62, 190, 422.
cærulescens cairnsi, 237.
castanea, 209, 214.
cerulea, 209, 238, 422.
coronata, 50, 62, 73, 190, 422, 436.
discolor, 87, 210, 280, 422.
dominica, 422.
dominica albilora, 210.
kirtlandi, 422, 480.
maculosa, 6, 33, 62, 190, 209, 237, 283, 383.
magnolia, 383.
nigrescens, 437.
palmarum, 214, 422.
palmarum hypochrysea, 422.
pensylvanica, 17, 62, 209, 238, 422.
striata, 4, 50, 62, 73, 209, 225, 422.
tigrina, 209, 479.
townsendi, 50, 437.
vigorsii, 210, 422.
virens, 62, 210, 422.
Deroptyus accipitrinus, 311.
Dichromanassa rufescens, 175.
Dickcissel, 188, 206, 454.
Diglossa montana, 240.
Dilophalieus, 390.
Dinornis ingens, 238.
Diomedea, 345, 389.
albatrus, 345, 429.
brachyura, 345.

Diomedea exulans, 345.
palpebrata, 358.
Dipper, American, 51.
Dolichonyx oryzivorus, 28, 60, 186, 201, 222, 280, 419, 493.
Dove, Ground, 440.
Inca, 91.
Mourning, 199, 234, 417, 432. 440, 458, 464.
White-winged, 82, 440.
Dovekie, 215.
Dowitcher, 177.
Long-billed, 177.
Dromaius peroni, 240.
Dryobates borealis, 200, 418, 446.
lucasanus, 393.
pubescens, 418, 446, 465.
pubescens gairdneri, 434.
pubescens medianus, 59, 199.
scalaris bairdi, 458.
scalaris lucasanus, 393.
villosus, 185, 199, 465.
villosus auduboni, 418, 446.
villosus harrisi, 433.
villosus hyloscopus, 483.
Duck, Black, 14, 450, 462.
Buffle-head, 15, 247, 340.
Canvasback, 80, 340.
Dusky, 450.
Greater Scaup, 15.
Harlequin, 156, 166, 340, 472.
Lesser Scaup, 14, 197, 438, 463.
Long-tailed, 69.
Masked, 472.
Nigger Black, 284.
Pintail, 15, 213, 340.
Red-head, 14, 340.
Red-legged Black, 283.
Red-paddle Black, 284.
Ring-necked, 213, 234, 438, 463.
Ruddy, 14.
Wood, 15, 417, 340, 450.
Dumetella, 385.
carolinensis, 211, 385.
Dutcher, William, notice of his Annual Report of the National Association of Audubon Societies for 1907, 101.
Dwight, Jonathan, Jr., notice of his 'Index to the Bulletin of the Nuttall Ornithological Club, Vols. I–VIII, and The Auk, Vols. I–XVII,' 99.
Dyke, Arthur C., the Canvasback at Bridgewater, Mass., 80.
Dysporus, 352.
Dytes, 389.

Eagle, Bald, 160, 214, 230, 259, 265, 433, 442, 464.
Golden, 71, 251–268, 323, 433, 442, 464, 469.
Northern Bald, 71.
Pallas's Sea, 265.
White-tailed, 265.
Ectopistes macroura, 392.
migratorius, 181, 183, 285, 392, 440, 451.
Edson, J. M., birds of the Bellingham Bay region, 425–439
Egatheus, 390.
Egret, American, 174, 234, 277, 286, 451, 473.
Reddish, 175.
Egretta candidissima, 174, 313.
Eifrig, G., a long-drawn-out migration: its causes and consequences, 1–9.
Elanoides forficatus, 441, 452.
Elanus leucurus, 441.
Emberiza nivalis, 377.
Emberizoides sphenura lucaris, 334.
Embody, G. C., the accidental occurrence of the Green-tailed Towhee (*Oreospiza chlorura*) in Virginia, 224.
Emeus boothi, 240.
haasti, 240.
parkeri, 240.
Empidonax canescens, 376.
cineritius, 376.
difficilis, 434.

Empidonax difficilis cineritius, 376.
flaviventris, 60, 197, 201.
fulvifrons, 353.
griseus, 376, 459.
hammondi, 438.
insulicola, 353.
minimus, 27, 60 202 235, 279
traillii, 434.
traillii alnorum, 27, 60, 197, 201.
virescens, 20, 201, 233, 419.
wrightii, 27.
Endomychura, 345.
Ereunetes, 367.
mauri, 367.
occidentalis, 157, 367, 432.
pusillus, 70, 178.
Ergaticus, 354.
ruber, 354.
Euetheia, 399.
Euphagus carolinus, 72, 202, 280.
cyanocephalus, 435, 460.
Euphonia, 353.
elegantissima, 353.
Euxenura maguari, 38.
Exanthemops, 390.

Falco æsalon, 370.
cinerascens, 269.
columbarius, 71, 278, 433, 442, 464.
columbarius richardsoni, 370.
columbarius suckleyi, 160, 433.
fuscus, 269.
latissimus, 270.
mexicanus, 464.
palumbarius, 369.
pennsylvanicus, 269.
peregrinus, 347.
peregrinus anatum, 59, 71, 433, 442.
peregrinus peali, 160.
regulus, 370.
richardsoni, 452.
rusticolus, 452, 464.
rusticolus obsoletus, 234.
sparverius, 417, 442, 464.
Falco sparverius paulus, 347.
sparverius phalœna, 160, 433, 458.
urubitinga, 369.
wilsoni, 270.
Falcon, Peale's, 160, 164.
Peregrine, 347.
Prairie, 464.
Fay, S. Prescott, Barrow's Goldeneye (*Clangula islandica*) in Massachusetts, 217.
Field, George W., quoted, on the Heath Hen, 108.
Finch, California Purple, 435.
Gray-crowned, 453.
House, 96, 460.
Nelson's, 475.
Purple, 1, 2, 8, 61, 138, 202, 236, 419.
Finley, William Lovell, notice of his 'American Birds studied and photographed from Life,' 93.
Flamingo, American, 313.
Fleming, James H., the destruction of Whistling Swans (*Olor columbianus*) at Niagara Falls, 306–309; Ontario bird notes, 486.
Flicker, 7, 137, 138, 418, 447.
Gilded, 448.
Northern, 26, 60, 71, 201, 418, 448, 465.
Northwestern, 434.
Red-shafted, 26, 453.
Yellow-shafted, 484.
Florida cœrulea, 175.
Flycatcher, Acadian, 318.
Alder, 9, 15, 27, 60, 196, 197, 201.
Ash-throated, 185, 459.
Crested, 9, 15, 60, 201, 418, 453.
Gray, 459.
Green-crested, 20, 201, 233, 419.
Hammond's, 438.
Least, 3, 8, 13, 27, 60, 202, 235, 279.

Flycatcher, Olive-sided, 15, 27, 60, 214, 418, 434.
Santa Barbara, 353.
Traill's, 434.
Vermillion, 459.
Western, 434.
Wright's, 27.
Yellow-bellied, 15, 60, 136, 197, 201.
Forbes, S. A., notice of his 'The Mid-Summer Bird Life of Illinois. A Statistical Study,' 491.
Formicarius castaneiceps, 493.
Foudia flavicans, 240.
newtoni, 240.
Fregata, 338, 360.
Fregetta, 338, 360.
Fringilla albicollis, 224.
erythrophthalmus, 224.
maculata, 229.
passerina, 378.
Fulica americana, 177, 213, 219, 431, 463.
noveboracensis, 364.
Fuligula, 362.
Fulmarus, 399.

Gadwall, 234, 325, 430.
Galeoscoptes, 385.
carolinensis, 34, 52, 62, 385, 423.
Gallinago, 366.
delicata, 70, 177, 213, 431.
major, 366.
media, 366.
Gallinula galeata, 81, 176.
Gallinule, Florida, 15, 81, 176.
Purple, 176, 234.
Gannet, 486.
Gavia, 389.
adamsi, 68.
arctica, 428.
imber, 68, 156, 356, 428, 462, 471.
immer, 356.
lumme, 69, 356, 429.
Gavia pacifica, 68, 156, 428.
stellata, 356.
Gelochelidon nilotica, 234.
Geococcyx californianus, 458.
Geothlypis, 384.
agilis, 281, 284.
beldingi, 384.
formosa, 423.
philadelphia, 62, 230, 282.
poliocephala, 384.
tolmiei, 33, 437.
trichas, 384, 396, 423.
trichas arizela, 33, 437.
trichas brachidactyla, 33, 62, 211, 354.
trichas ignota, 396.
trichas occidentalis, 50, 461.
Gibson, Langdon, the Turkey Buzzard near Schenectady, N. Y., 315.
Giglioli, Eurico Hillyer, notice of his 'Avifauna Italica,' 242.
Glaucidium, 221, 393.
gnoma californicum, 433.
phalænoides, 398.
phalænoides ridgwayi, 398.
Glaux, 371.
acadicus, 372.
acadicus scotæus, 372 484,
funerea richardsoni, 371, 484.
Gnatcatcher, Blue-gray, 15, 212, 318, 424, 481, 482.
Plumbeous, 462.
Western, 190, 462.
Godman, F. Du Cane, his 'Monograph of the Petrels', announcement of, 105; notices of, Part I, 244, Part II, 338.
Godwit, Hudsonian, 178, 284.
Marbled, 178, 234, 473.
Golden-eye, American, 7, 217, 430.
Barrow's, 217, 430.
Goldfinch, American, 8, 30, 61, 203, 419.
Green-backed, 460.
Pale, 30.

Goldfinch, Willow, 435.
Goose, American White-fronted, 80.
Blue, 451.
Canada, 70, 431, 463.
Hutchins's, 70, 431, 463.
Lesser Snow, 70, 431, 463.
Pink-footed, 346.
Ross's, 451.
White-fronted, 431.
White-cheeked, 437.
Goshawk, American, 82, 277, 323.
Western, 433.
Grackle, Bronzed, 1, 2, 7, 14, 29, 114, 202, 466.
Rusty, 4, 9.
Grebe, Holbœll's, 156, 428.
Horned, 15, 428.
Pied-billed, 15, 132, 213, 428.
Western, 156, 428.
Grinnell, J., the name of the California Least Vireo, 85.
Grosbeak, Alaskan Pine, 482
Black-headed, 32, 43, 228, 245, 436.
Blue, 214, 245, 286, 420.
Cardinal, 245.
Evening, 10.
Gray, 245.
Pine, 10, 72, 280, 324.
Rose-breasted, 8, 14, 15, 61, 206, 233, 245, 420.
Spotted, 228.
Western Blue, 188, 461.
Western Evening, 187, 435.
Gross, Alfred O., Swainson's Warbler (*Helinaia swainsonii*), 225.
Grouse, Canadian Ruffed, 432.
Franklin's, 438.
Oregon Ruffed, 432.
Prairie Sharp-tailed, 464.
Ruffed, 59, 71, 198, 286, 464.
Sage, 260.
Sharp-tailed, 138, 253, 260.
Sooty, 432.
Grus americana, 176, 463, 484.
canadensis, 70, 431, 451, 463.
Grus mexicana, 176, 431, 463.
Guara alba, 173.
rubra, 174.
Guillemot, Pigeon, 155, 158, 159, 164, 165, 429.
Guiraca cærulea, 214, 286, 420.
cærulea lazula, 188, 461.
Gull, Bonaparte's, 15, 429.
California, 69, 293, 294, 295, 429.
Glaucous, 298–300, 357.
Glaucous-winged, 159, 160, 161, 162, 163, 164, 165, 429.
Great Black-backed, 398.
Heermann's, 159, 160, 429.
Herring, 8, 69, 132, 213, 298, 429.
Iceland, 298–300.
Kumlien's, 296–300.
Laughing, 283.
Ring-billed, 14, 324, 429, 457, 462.
Sabine's, 484.
Short-billed, 69, 429.
Vega, 438, 484.
Western, 155, 158, 159, 160, 161, 163, 164, 166, 429.
Gypagus, 369.
Gyrfalcon, Black, 234.
Gray, 452, 464.

Hæmatopus bachmani, 155, 432.
palliatus, 180, 284.
Haliæetus albicilla, 265.
leucocephalus, 160, 214, 259. 265, 433, 442, 464.
leucocephalus alascanus, 71.
leucoryphus, 265.
Haliplana fuliginosa var. crissalis, 345.
Hardy, John H., Jr., the Ruff at Seabrook, N. H., 82.
Harelda hyemalis, 69, 184, 217, 430.
Harlow, Richard C., Virginia Rail and Kentucky Warbler in New Jersey, 218; Bobolinks summer-

ing in Southern Pennsylvania, 222; recent notes on birds of eastern Pennsylvania, 276–282; breeding of the Loon in Pennsylvania, 471.
Harper, Francis, the Hermit Thrush as a summer resident of Long Island, N. Y., 481.
Havell, Robert, biographical notice of, 406–410.
Hawk, American Rough-legged, 71, 277, 284, 442.
American Sparrow, 199, 442, 464.
Broad-winged, 14, 59, 83, 199, 232, 268–276, 316, 417, 442, 452.
Cooper's, 14, 213, 316, 417, 433, 441, 452, 458, 464.
Desert Sparrow, 160, 433, 458.
Duck, 59, 71, 433, 442.
Florida Red-shouldered, 442.
Harlan's, 214, 441.
Harris's, 441.
Krider's 199, 441, 452, 474.
Little Sparrow, 347.
Marsh, 7, 14, 83, 135, 213, 252, 432, 441, 468.
Pigeon, 71, 278, 433, 442, 464.
Red-shouldered, 14, 83, 214, 316, 442, 464.
Red-tailed, 14, 59, 199, 316, 417, 441, 464.
Rough-legged, 353.
Sharp-shinned, 15, 199, 316, 433, 441.
Sparrow, 8, 417.
Swainson's, 214, 433, 468–471.
Western Red-tailed, 433, 458.
Hazard, R. G., breeding of the Carolina Wren in Rhode Island, 480.
Helinaia, 399.
swainsoni, 225.
Helminthophila, 399.
bachmani, 207, 421, 479.
Helminthophila celata, 33, 50, 483.
celata lutescens, 159, 421, 436.
chrysoptera, 65, 86, 214, 284, 421.
cincinnatiensis, 354.
lawrencei, 65, 86, 354.
leucobronchialis, 65–68, 86, 208, 354.
peregrina, 33, 73, 190, 209, 421.
pinus, 16, 65, 86, 208, 233, 328, 421.
rubricapilla, 33, 62, 208, 421.
Helmitheros vermivorus, 207, 319, 421, 478.
Helodromas solitarius, 180, 391, 463.
Hen, Heath, 108.
Prairie, 439, 464.
Henshaw, H. W., a parasitic fly injurious to our native birds, 87.
Herodias, 399.
egretta, 174, 234, 277, 286.
Heron, Black-crowned, 175, 185, 198, 313, 314, 326, 457.
Fannin's, 160.
Great Blue, 7, 14, 174, 198, 285, 291–296, 431.
Green, 15, 59, 175, 198, 313, 417.
Little Blue, 175, 313.
Little Green, 451.
Louisiana, 175, 313.
Northwest Coast, 438.
Snowy, 174, 313.
Treganza Blue, 291–296, 457.
Würdemann's, 352.
Yellow-crowned, 175.
Herrick, Newbold L., Black Brant and Marbled Godwit on Long Island, N. Y., 473.
Hesperiphona vespertina montana, 435.
Heteractitis incanus, 157.
Hierofalco, 392.
Himantopus mexicanus, 177, 457.
Hirundo chalybea, 349.

Hirundo erythrogaster, 33, 44, 61, 73, 159, 207, 420, 436, 466.
rustica, 349.
urbica, 350.
Histrionicus histrionicus, 156, 166, 430.
Hollister, N., breeding of the Acadian Owl in Newton County, Indiana, 221; birds of the region about Needles, California, 455–462.
Hopkins, May Agnes, notice of her 'On the relative dimensions of the Osseus Semicircular Canals in Birds,' 98.
Horsfall, Bruce, migration of Hawks, 474.
Hortulanus, 223, 399.
albicollis, 224.
erythroptalmus, 224.
nigricollis, 224.
Howard, H. Eliot, notice of his 'The British Warblers,' pts. 1 and 2, 339.
Howe, Reginald Heber, Jr., new Massachusetts records for the Hawk and Great Gray Owls, 84; Massachusetts records, 323; *Ardea egretta* in New Jersey, 473.
Howell, Arthur, notice of his 'The Relation of Birds to the Cotton Boll Weevil,' 97; notice of his 'Notes on the Winter Birds of Northern Louisiana,' 493.
Hummingbird, Allen's, 434.
Calliope, 434.
Costa, 459.
Floresi's, 353.
Ruby-throated, 3, 9, 15, 60, 201, 418, 465.
Rufous, 159, 163, 164, 434.
Salvin's, 348.
Violet-throated, 353.
Hunt, Chreswell J., *Rallus virginianus* a Delaware Valley breeder, 81; the Tree Swallow nesting in the Delaware Valley, 85; the Kentucky Warbler in southern New Jersey, 87.
Hutchins, John, Pileated Woodpecker near Litchfield, Conn., 475.
Hydranassa tricolor ruficollis, 175.
Hydrochelidon nigra surinamensis, 215, 429, 462.
Hydrocolœus, 389.
Hydroprogne, 389, 399.
Hylobrontes, 391.
Hylocichla aliciæ, 34, 54, 73, 212, 424.
aliciæ bicknelli, 34, 63.
aonalaschkæ swainsonii, 74.
fuscescens, 63, 214, 282, 424.
fuscescens salicicola, 34.
guttata, 483.
guttata nana, 438.
guttata pallasi, 64, 213, 424, 467, 481.
guttata sequoiensis, 351, 483.
guttata slevini, 351.
mustelina, 63, 91, 212, 424, 467.
ustulata, 159, 437.
ustulata almæ, 34, 355.
ustulata swainsonii, 54, 64, 74, 213, 424, 483.
Hylophilus, 354.
decurtatus, 354.
Hypotriorchis, 392.

Iache, 374.
latirostris, 375.
Ibis, Glossy, 174.
Scarlet, 174.
White, 173.
White-faced Glossy, 174, 457.
Wood, 37, 174, 363.
Icteria virens, 19, 211, 423.
virens longicauda, 50, 461.
Icterus bullocki, 29, 460.
galbula, 29, 61, 187, 202, 419, 466.
icterus, 377.
spurius, 186, 202, 419, 466.

Ictinia mississippiensis, 213 441.
Ihering, Hermann and Rodolpho von, notice of their 'As Aves do Brazil,' 94.
Index, a twenty-five Year, to 'The Auk' and Nuttall Bulletin,' notice of, 99.
Ionornis, 391.
martinica, 176, 234.
Iridoprogne bicolor, 32, 45, 73, 85, 207, 436.
Ispida, 399.
Ixobrychus, 364.
exilis, 364.
neoxenus, 364.
Ixoreus nævius, 438.
nævius meruloides, 398.

Jabiru, 38, 363.
Jabiru-guacu, 37.
Jabiru brasiliensis, 38.
mycteria, 38, 362.
Jaeger, Arctic, 215.
Long-tailed, 215, 450.
Parasitic, 69, 429.
Pomarine, 438, 484.
Jay, Blue, 60, 94, 186, 202, 419, 466.
California, 94.
Canada, 71, 136, 139.
Coast, 348.
Florida Blue, 419.
Oregon, 434.
Steller's, 434.
Woodhouse's, 460.
Johnson, M. Susan, notes on Missouri birds, 324.
Jones, Lynds, notice of his 'The Development of Nestling Feathers,' 90.
Junco aikeni, 466.
annectens, 378.
caniceps, 378.
dorsalis, 395.
hyemalis, 42, 61, 72, 205, 378, 419, 467.
hyemalis annectens, 378.
Junco hyemalis carolinensis, 236.
hyemalis connectens, 205.
hyemalis mearnsi, 378.
hyemalis montanus, 378.
hyemalis oregonus, 378, 438.
hyemalis shufeldti, 435, 467.
hyemalis thurberi, 460.
hyemalis townsendi, 378.
mearnsi, 31.
montanus, 31.
phæonotus caniceps, 378.
phæonotus dorsalis, 395.
Junco, Carolina, 236.
Montana, 188, 205.
Oregon, 187, 438.
Pink-sided, 31.
Shufeldt's, 205, 467.
Slate-colored, 1, 7, 42, 61, 137, 205, 236, 419, 467.
Thurber's, 460.
White-winged, 466.

Kalmbach, Edwin R., notes on three Michigan birds, 230.
Kamptorhynchus, 362.
Kennard, Fred. H., capture of the King Rail in Massachusetts, 218.
Killdeer, 7, 14, 114, 180, 213, 234, 324, 432, 458, 464.
Kingbird, 8, 15, 27, 60, 201, 418, 434.
Arkansas, 27, 434, 459.
Kingfisher, Belted, 2, 8, 26, 59, 132, 199, 418, 433, 445, 458.
Kinglet, Golden-crowned, 7, 14, 63, 136, 139, 212, 424.
Ruby-crowned, 4, 8, 212, 424, 437, 462.
Sitkan, 437.
Western Golden-crowned, 437.
Kirkwood, F. C., Chestnut-collared Longspur (*Calcarius ornatus*) in Maryland, 84.
Kite, Mississippi, 213, 441.
Swallow-tailed, 452.
White-tailed, 441.

Kittiwake, Pacific, 429.
Knot, 157, 178.

LaDow, Stanley V., the Hooded Warbler a summer resident in Green Co., N. Y., 480.
Lagopus lagopus, 71.
leucurus, 432.
leucurus altipetens, 352.
leucurus peninsularis, 346.
rupestris chamberlaini, 399.
Lanius borealis, 49, 73, 280, 436, 467.
ludovicianus, 421.
ludovicianus excubitorides, 49, 461, 467.
ludovicianus migrans, 207, 280, 286.
Lanivireo, 382.
flavifrons, 207, 382.
solitarius, 382.
solitarius alticola, 382.
solitarius cassini, 189, 382.
solitarius lucasanus, 382.
solitarius plumbeus, 382.
Lark, Desert Horned, 27.
Dusky Horned, 434.
Horned, 318.
Hoyt's Horned, 71.
Prairie Horned, 1, 14, 202, 233, 235, 318, 323.
Sonoran Horned, 460.
Larus argentatus, 69, 213, 357, 399, 429.
atricilla, 283.
barrovianus, 352.
brachyrhynchus, 69, 429.
californicus, 69, 293, 294, 295, 429.
canus, 358.
delawarensis, 324, 429, 457 462.
glaucescens, 151, 429.
glaucus, 298–300.
heermanni, 429.
hyperboreus, 357.
Larus kumlieni, 296–300.
leucopterus, 298–300.
occidentalis, 155, 429.
philadelphia, 429.
vegæ, 399, 438, 484.
Lee, Leslie Alexander, obituary of, 340.
Leibelsperger, W. H., some rare summer residents of Berks County, Pennsylvania, 232.
Lengerke, Justus von, migration of hawks, 315.
Leptopogon superciliaris, 334.
Leucophoyx, 399.
Leucosticte griseonucha, 394.
tephrocotis, 453.
tephrocotis griseonucha, 394.
tephrocotis littoralis, 435.
Leucosticte, Hepburn's, 435.
Limosa fedoa, 178, 234, 473.
hæmastica, 178, 284.
Lizars, William Home, biographical notice of, 410–413.
Lobipes, 365.
lobatus, 365.
Longspur, Alaskan, 483.
Chestnut-collared, 30, 72, 84.
Lapland, 72, 281.
McCown's, 30.
Painted, 72.
Loon, 14, 68, 132, 156, 428, 462, 471.
Black-throated, 428.
Pacific, 68, 428.
Red-throated, 69, 429.
Yellow-billed, 68.
Lophodytes cucullatus, 287, 430.
Lophornis delattrii, 334.
Lophortyx californicus, 432.
catalinensis, 391.
gambeli, 458.
Loxia curvirostra bendirei, 394.
curvirostra minor, 30, 61, 72, 202, 318, 435.
leucoptera, 203, 280, 324.
maculata, 228.

Lunda cirrhata, 155, 429.

Macaw, of Dominica, 309–311.
Macronectes, 358.
giganteus, 358.
Macrorhamphus, 366.
griseus, 177.
scolopaceus, 177
Magpie, American, 28, 186, 434, 466.
Maguari, 38.
Maine Ornithological Society, Twelfth Annual Meeting of, 106.
Mallard, 213, 312, 430, 457, 462.
Black, 450.
Manchot, 337.
Mareca americana, 430.
Marila, 361.
affinis, 197, 362.
americana, 362.
collaris, 213, 362.
marila, 362.
vallisneria, 362.
Marshall, Margaret E., notice of her 'Studies in Avian Anatomy, II, *Geococcyx Bubo*, and *Aëronnautes*,' 245.
Martin, 350.
Gray-breasted, 349.
Purple, 8, 14, 44, 207, 420.
Western, 436.
Matthews, Gregory M., notice of his 'Handlist of the Birds of Australia', 244.
Maxson, O. P., [curious fatality among Chimney Swifts], 317.
McAtee, W. L., notice of his 'Food Habits of the Grosbeaks,' 245; lead poisoning in Ducks, 472; records from Bloomington, Ind., 482.
McGlone, Bartgis, a note on the Audubon Shearwater, 472.
McGregor, Richard C., notice of papers on Philippine ornithology by, 336.
Meadowlark, 7, 10, 14, 202, 466, 492.
Florida, 419.
Western, 29, 435, 466.
Mearns, E. A., notice of papers on Philippine ornithology by, 336.
Megaceryle, 373.
Megalapteryx hamiltoni, 240.
huttoni, 238.
Megalestris, 389.
Megarhynchus pitangua superciliaris, 334.
Megascops, 372.
asio, 417, 464.
asio floridanus, 443.
asio kennicotti, 433.
asio maxwelliæ, 56.
Melanerpes erythrocephalus, 200, 279, 283, 418, 447, 465, 476.
formicivorus aculeatus, 393.
Melanitta, 390.
Melanonyx, 390.
Meleagris gallopavo silvestris, 285, 417, 439.
Melopelia asiatica, 368.
leucoptera, 82, 368, 440.
Melospiza cinerea juddi, 31, 395.
cinerea melodia, 61, 206, 420.
cinerea morphna, 159, 435.
cinerea phæa, 399.
cinerea rufina, 435.
coronatorum, 395.
fasciata, 42.
georgiana, 61, 73, 206, 281, 420.
lincolni, 42, 73, 206, 483.
lincolni gracilis, 395.
lincolni striata, 395.
melodia, 379.
melodia caurina, 379.
melodia clementæ, 379, 395.
melodia cleonensis, 349, 379.
melodia cooperi, 379.
melodia fallax, 379, 460.
melodia graminea, 379.
melodia heermanni, 379.
melodia insignis, 379.
melodia juddi, 379, 395.

Melospiza melodia kenaiensis, 379.
melodia merrilli, 379.
melodia montana, 379.
melodia morphna, 379.
melodia pusillula, 379.
melodia rivularis, 379.
melodia rufina, 379.
melodia samuelis, 379.
melodia sanaka, 379.
Menegaux, A., notice of his report on the birds of the French Antarctic Expedition, 337.
Merganser, 360, 390.
americanus, 283, 430.
serrator, 69, 430.
Merganser, American, 132, 283, 430.
Hooded, 8, 15, 132, 287, 430.
Red-breasted, 15, 69, 217, 430, 457.
Mergellus, 360.
albellus, 360.
Mergus, 360.
albellus, 360.
americanus, 360.
merganser, 360.
serrator, 360, 457.
Merlin, Black, 160, 433.
Richardson's, 452.
Merriam, C. Hart, the King cameos of Audubon, 448–450.
Merula, 387.
migratoria, 64, 74, 424, 438, 467.
migratoria propinqua, 34, 55, 159, 438, 467.
Micropalama himantopus, 81, 178.
Miller, Mrs. Olive Thorne, notice of her 'The Bird Our Brother,' 493.
Miller, Richard F., the Black Tern at Camden, N. J., and Philadelphia, Pa., 215; nesting of the King Rail in Philadelphia County, Pa., 218; nesting of the Virginia Rail in Philadelphia County, Pa., 219; nesting of the Coot in Philadelphia County, Pa., 219; the Lesser Yellow-leg in Philadelphia County, Pa., 220; nesting of the Short-billed Marsh Wren in Philadelphia, Pa., 320-322.
Mimus polyglottos, 211, 320, 423.
polyglottos leucopterus, 461.
Mniotilta varia, 6, 33, 61, 190, 207, 421.
Mockingbird, 211, 320, 423, 482.
Western, 461.
Molothrus ater, 28, 71, 202, 229, 435, 466.
ater obscurus, 460.
Morphnus, 399.
Motacilla alba, 396.
currucoides, 388.
maculosa, 383.
ocularis, 396.
suecica, 388.
troglodytes, 386.
Munroe, Kirk, a large migration of Hawks, 83.
Murre, Brünnich's, 486.
California, 155, 158, 159, 163, 164, 429.
Murrelet, Ancient, 438.
Marbled, 156, 429.
Muscicapa carolinensis, 385.
citrina, 384.
saya, 375.
Mycteria, 37, 38, 363.
americana, 37, 38, 363.
Myiadestes townsendii, 54, 437.
Myiarchus cinerascens, 185, 459.
crinitus, 60, 201, 418, 453.
lawrencei, 353.
magister, 376.
magister nelsoni, 376.
mexicanus, 376.
Myiobius aurantiacus acceptus, 334.
xanthopygus aureatus, 334.
Myiochanes, 375.
cinereus, 375.
pertinax pallidiventris, 376.
richardsonii, 376.

Myiochanes richardsonii peninsulæ, 376.
virens, 201, 376.
Myiozetetes similis superciliosus,353.

NANNUS, 386.
alascensis, 386.
hiemalis, 210, 386.
hiemalis helleri, 386.
hiemalis pacificus, 386.
meligerus, 386.
National Association of Audubon Societies. Annual Report of for 1907, 101; Annual Meeting, 1907, 107; Annual Meeting, 1908, 498.
Necropsittacus borbonicus, 240.
Neodendroica, 396.
Nesœnas duboisi, 240.
Nettion carolinensis, 69, 213, 430, 463.
Nichols, John Treadwell, Lawrence's and Brewster's Warblers and Mendelian inheritance, 86.
Nighthawk, 4, 8, 15, 26, 60, 201, 418.
Pacific, 347.
Sennett's, 27.
Texas, 459.
Western, 434, 465.
Noctua, 221, 393.
minor, 221.
Nomonyx dominicus, 472.
Norton, Arthur H., the Florida Gallinule, Stilt and Buff-breasted Sandpipers near Portland, Me., in 1907, 81.
Notornis alba, 239.
stanleyi, 239.
Nucifraga columbiana, 222, 318, 435.
Numenius americanus, 368.
borealis, 179, 464.
hudsonicus, 157, 179, 432.
longirostris, 179, 234, 368, 464.
vociferus, 364.
Nutcracker, Clarke's, 318, 435.
Nuthatch, Brown-headed, 212, 424.
Nuthatch, Red-breasted, 34, 63, 136, 139, 212, 233, 282, 437
Slender-billed, 54.
White-breasted, 9, 63, 212, 424.
Nuttall Ornithological Club Bulletin, notice of index to, 99.
Nuttallornis borealis, 27, 60, 214, 418, 434.
Nyctala acadica, 55, 221, 278, 286, 443.
Nyctalops, 392.
Nyctanassa violacea, 175.
Nyctea nyctea, 71, 278, 433, 443.
Nycticorax, 364.
infaustus, 364.
nycticorax griseus, 391.
nycticorax nævius, 175, 185, 314, 326, 457.

OCEANODROMA, 345.
beali, 244, 389.
beldingi, 244, 390.
castro, 359.
cryptoleucura, 359.
furcata, 345, 485.
kaedingi, 155, 156, 429.
monorhis, 244, 399.
monorhis chapmani, 244, 390.
socorrœnsis, 244, 399.
Ochthodromus wilsonius, 180.
Oidemia americana, 156, 431.
deglandi, 69, 156, 184, 217, 431.
perspicillata, 69, 156, 184, 431.
Olbiorchilus, 386.
hiemalis, 63, 423.
hiemalis pacificus, 159, 437.
Old-squaw, 184, 217, 430.
Oldys, Henry, capture of a tagged Canvasback Duck, 80.
Olor buccinator, 284, 326.
columbianus, 70, 217, 284, 306–309, 326, 431.
Oporornis, 384
agilis, 384.
formosa, 87, 210, 218, 320, 384.
philadelphia, 210, 384.

Oporornis tolmiei, 384.
Oreortyx pictus, 432.
Oreospiza chlorura, 224.
Oriole, Baltimore, 8, 14, 15, 29, 61, 186, 419, 466.
Bullock's, 29, 186, 202, 460.
Orchard, 15, 186. 202, 419, 466.
Oroscoptes montanus, 51, 461.
Ornismya cœligena, 374.
heloisa, 347.
Ornithion, 376.
imberbe ridgwayi, 353.
Ortalis vetula plumbeiceps, 341.
Ortygops, 391.
Osprey, American, 15, 71, 132, 199, 433, 442, 458.
Ossifraga, 358.
Otocoris alpestris alpestris, 318.
alpestris aphrasta, 394.
alpestris enertera, 399.
alpestris enthymia, 28.
alpestris hoyti, 71.
alpestris leucolæma, 27.
alpestris merrilli, 434.
alpestris pallida, 460.
alpestris praticola, 1, 202, 233, 235, 318.
Otus, 372.
asio, 214, 372.
asio aikeni, 372.
asio bendirei, 372.
asio cineraceus, 372.
asio floridanus, 372.
asio kennicottii, 372.
asio macfarlanei, 372.
asio maxwelliæ, 185, 372.
asio mccallii, 372.
bakkamœna, 372.
flammeola, 372.
flammeola idahoensis, 372.
trichopsis, 372.
Ouzel, Water, 437.
Oven-bird, 8, 14, 15, 19, 50, 62, 137, 210.
Owl, Acadian, 221, 286.
American Barn, 21–25, 185, 232, 234, 286, 316, 442.
Owl, American Hawk, 71, 84, 235, 433.
American Long-eared, 25, 56, 230, 278, 442.
American Short-eared, 25, 221, 278, 371.
Arctic Horned, 25, 71, 487.
Barn, 288–291, 370.
Barred, 59, 199, 417, 443, 452, 464.
Burrowing, 26, 433, 443, 453, 465.
California Pigmy, 433.
Dusky Horned, 433.
Flammulated Screech,
Florida Barred, 443.
Florida Screech, 443.
Great Gray, 71, 84, 234, 433.
Great Horned, 214, 417, 443, 465.
Kennicott Screech, 433.
Labrador Horned, 347, 487.
Northwest Saw-whet, 484.
Richardson's, 235, 433, 484.
Rocky Mountain Screech, 54, 185.
Saw-whet, 55, 278, 443.
Screech, 214, 417, 464.
Short-eared, 433, 443.
Snowy, 71, 278, 433, 443.
St. Michael Horned, 347
Tawny, 289.
Texan Barred, 316.
Western Horned, 433.
White, 71.
White Horned, 453.
Wood, 289, 370.
Oxyechus vociferus, 180, 213, 234, 432, 458.
Oystercatcher, American, 180, 284.
Black, 155, 158, 159, 160, 161. 162, 163, 164, 165, 166, 432,

Pachyrhamphus versicolor costaricensis, 334.
Palæocasuarius elegans, 340.
haasti, 340.

Palæocasuarius velox, 340.
Palmer, T. S., notice of his observations on the Birds of the Yellowstone National Park, 493.
Pandion haliaëtus carolinensis, 71, 442, 458.
Papou, 337.
Parabuteo unicinctus harrisi, 441.
Parasitic fly injurious to birds, 87.
Paroquet, Carolina, 443.
Partridge, California, 432.
Gambel, 458.
Mountain, 432.
Parus, 386.
atricapillus, 21, 63, 467.
atricapillus carolinensis, 398.
atricapillus occidentalis, 437.
atricapillus septentrionalis, 34, 54, 73, 467.
atricristatus kleinschmidti, 243.
carolinensis, 398, 424.
cinctus alascensis, 398.
cinctus obtectus, 398.
hudsonicus, 63, 73.
hudsonicus columbianus, 355.
hudsonicus stoneyi, 355.
palustris sclateri, 398.
rufescens, 437.
sclateri, 398.
(Lophophanes) bicolor floridanus, 397.
Passerculus princeps, 288.
sandwichensis, 438.
sandwichensis alaudinus, 31, 39, 72, 203, 435, 466.
sandwichensis savanna, 61, 203, 223.
Passer domesticus, 203, 287, 419, 435, 453, 467.
Passerella iliaca, 73, 206, 420.
iliaca annectens, 395.
iliaca fuliginosa, 349, 436.
iliaca insularis, 349.
iliaca meruloides, 395.
iliaca stephensi, 395.
iliaca townsendi, 349.
Passerella iliaca unalaschensis, 439.
stephensi, 395.
Passerherbulus, 399.
Passerina, 377, 380.
amœna, 381.
ciris, 381.
cyanea, 206, 380.
nivalis, 72, 280, 435.
versicolor, 381.
versicolor pulchra, 381.
Pavoncella pugnax, 82.
Pearson, Leonard S., the Blue-gray Gnatcatcher in southeastern Pennsylvania, 481.
Pearson, T. Gilbert, Cabot's Tern (*Sterna sandvicensis acuflavida*) breeding in North Carolina, 312; the breeding season of *Strix pratincola* in South Carolina, 316.
Pediœcetes phasianellus campestris, 464.
Pelecanus californicus, 390.
erythrorhynchos, 69, 213, 293, 295, 328, 430, 457, 462.
fuscus, 390.
leucogaster, 359.
piscator, 359.
Pelican, American White, 69, 213, 293, 295, 328, 430, 457, 462.
Pelidna alpina sakhalina, 178, 431.
Penard, Frederik Paul, and Arthur Philip, notice of their 'De Vogels van Guyana,' 491.
Penguin, 337.
Pennock, C. J., *Rallus virginianus* breeding in the Delaware Valley, 219; birds of Delaware — additional notes, 282–288; Red Crossbills, and some other birds in Lower Delaware, 318; White-crowned Sparrows unusually abundant in eastern Pennsylvania, 319.
Penthestes, 386.
atricapillus, 386.
atricapillus occidentalis, 386.

Penthestes atricapillus septentrionalis, 386.
atricapillus turneri, 386.
carolinensis, 386.
carolinensis agilis, 386.
carolinensis impiger, 351, 386
cinctus alascensis, 387.
gambeli, 386.
gambeli baileyæ, 351, 387.
hudsonicus, 387.
hudsonicus littoralis, 351, 387
rufescens, 387.
rufescens barlowi, 387.
rufescens neglectus, 387.
sclateri, 386.
Perisoreus, 394.
canadensis, 71.
obscurus, 434.
Perissoglossa, 396.
Peters, James L., Brewster's Warbler, 320.
Petrel, Fork-tailed, 485.
Kaeding's, 155, 158, 160, 161, 163, 164, 166, 429.
Petrochelidon lunifrons, 32, 44, 61, 73, 214, 436, 467.
Peucæa æstivalis bachmani, 205, 419.
Peucedramus, 383.
olivaceus, 383.
Pewee, 14.
Western Wood, 27, 434, 466.
Wood, 9, 15, 60, 201, 375, 419, 465.
Phalacrocorax auritus, 359.
auritus albociliatus, 359.
auritus cincinatus, 359.
auritus floridanus, 359.
dilophus, 69, 294, 325.
dilophus cincinatus, 155, 429.
mexicanus, 359.
pelagicus resplendens, 155, 430.
pelagicus robustus, 438.
penicillatus, 155, 429.
perspicillatus, 352.
vigua, 359.
Phalacrocorax vigua mexicana, 359.
Phalænoptila nuttalli, 214, 459.
Phalarope, Northern, 70, 157, 431
Wilson's, 80, 177, 234, 326, 328.
Phalaropus, 365.
fulicarius, 365.
lobatus, 70, 156, 157, 431.
Phalerinæ, 356.
Phaleris, 356, 357.
psittacula, 356, 485.
Phasianus colchicus, 286.
torquatus, 241, 432.
Pheasant, China, 241.
Denny, 241.
English, 286.
Ring-necked, 432.
Philippine Ornithology, contributions to, noticed, 336.
Philohela minor, 59, 177, 220, 232, 417.
Phlœotomus, 373.
pileatus, 374.
pileatus abieticola, 200, 374.
Phlogothraupis sanguinolenta aprica, 334.
Phœbastria, 345.
Phœbe, 7, 60, 71, 201, 279, 465.
Say's, 27.
Phœbetria fuliginosa, 358.
palpebrata, 358.
Phœnicopterus ruber, 313.
Phœonetta, 390.
Pica pica hudsonica, 28, 186, 434, 466.
Picoides americanus, 60.
arcticus, 59, 434.
arcticus tenuirostris, 393.
Picus lineatus, 373.
pileatus, 373.
torquatus, 374.
Pigeon, Band-tailed, 432.
Passenger, 181–183, 285, 440, 451.
Pingouin, 337.
Pinicola enucleator, 72, 324.
enucleator alascensis, 482.

Pinicola enucleator leucura, 280.
Pintail, 430, 463.
Pipilo aberti, 460.
albigula, 395.
crissalis, 380.
crissalis senicula, 380.
erythrophthalmus, 20, 206, 281, 420.
fuscus albigula, 395.
fuscus crissalis, 380.
fuscus mesoleucus, 188.
maculatus arcticus, 31, 42.
maculatus atratus, 380.
maculatus megalonyx, 380.
maculatus montanus, 380.
maculatus oregonus, 436.
Pipit, American, 51, 73, 423, 437
Sprague's, 33.
Piranga erythromelas, 61, 189, 206, 396, 420, 454, 467.
ludoviciana, 97, 436.
mexicana, 396.
rubra, 206, 235, 286, 420, 467.
rubra cooperi, 561.
Pisobia, 3, 366.
aurita, 366, 484.
bairdii, 367.
damascensis, 367.
fuscicollis, 367.
maculata, 367.
minutilla, 367.
Pitangus derbyanus, 375.
sulphuratus derbyanus, 375.
Pitcairn, Wm. G., Lark Sparrow (*Chondestes grammacus*) in southwestern Pennsylvania, 476.
Pithecophaga jefferi, 336.
Planesticus, 387.
confinis, 387.
migratorius, 213, 387.
migratorius achrusterus, 387.
migratorius propinquus, 387.
tristis, 241.
Platypsaris aglaiæ, 375.
aglaiæ albiventris, 375.
Plautus, 399.
Plectrophanes townsendi, 349.
Plectrophenax, 377.
hyperboreus, 377.
nivalis, 377.
nivalis townsendi, 377.
Plegadis, 390.
guarauna, 457.
Plover, Belted Piping, 180, 432.
Black-bellied, 114, 180.
Golden, 114, 180, 327, 438.
Piping, 114, 180.
Semipalmated, 70, 114, 157, 160, 180, 438.
Snowy, 180, 484.
Wilson's, 180.
Podiceps, 356, 389.
Podicipedes, 355.
Podicipidæ, 355.
Podilymbus podiceps, 213, 428.
Polioptila cærulea, 212, 424, 481.
cærulea obscura, 190, 562.
plumbea, 462.
Polyborus cheriway, 442.
Pooœcetes gramineus, 61, 203, 281, 419.
gramineus confinis, 31, 39, 460.
Poor-will, 214, 459.
Porphyriola, 391.
Porter, Louis H., nesting habits of birds at Stamford, Connecticut, as affected by the cold spring of 1907, 16–21.
Porzana carolina, 70, 176, 213, 327, 431, 463.
jamaicensis, 365.
noveboracensis, 70, 176.
Procellaria, 358.
leucorhoa, 345.
pelagica, 358.
Proctopus, 389.
Progne chalybea, 349.
subis, 44, 207, 420.
subis hesperis, 436.
Protection of wild birds, Guide to, 498.
Protocalliphora chrysorrhœa, 88.

Protonotaria citrea, 214, 230, 319, 320.
Psaltriparus grindæ, 398.
minimus grindæ, 398.
minimus saturatus, 398, 437.
plumbeus, 461.
Pseuduria, 389.
Psiloscops, 392.
Psittacus carolinensis, 373.
Platyrhynchus cinereus, 375.
Ptarmigan, Kenai White-tailed, 346.
White-tailed, 432.
Willow, 71.
Ptychoramphus aleuticus, 155, 156.
Puffin, Tufted, 155, 158, 159, 160, 161, 162, 163, 164, 165, 429.
Puffinus anglorum, 339.
auduboni, 339.
borealis, 338.
bailloni, 39.
fuliginosus, 352.
godmani, 339.
griseus, 156.
lherminieri, 339, 472.
kuhli, 338.
kuhli flavirostris, 338.
obscurus bailloni, 339.
opisthomelas, 485.
puffinus, 339.
tenuirostris, 485.
Pygoscelis papua, 337.
Pyrocephalus rubineus mexicanus, 459.
Pyrrhula sinuata, 245.

Quail, Gambel, 458.
Querquedula, 361.
cyanoptera, 216, 463.
discors, 197, 216, 430, 463.
Quiscalus quiscula æneus, 29, 202, 466.
Rail, Black,
Carolina, 431.
Light-footed, 346.
Louisiana Clapper, 176.
King, 176, 218, 234, 463.
Rail, Sora, 9, 15, 176, 213, 463.
Virginia, 15, 81, 176, 218, 219, 323, 431, 451, 463.
Yellow, 70, 176, 327.
Rallus crepitans saturatus, 176.
elegans, 176, 218, 234, 463.
jamaicensis, 365.
levipes, 346.
virginianus, 81, 176, 218, 431, 451, 463.
Raven, Northern, 71, 160, 231, 434.
Reagan, Albert B., the birds of the Rosebud Indian Reservation, South Dakota, 462–467.
Recurvirostra americana, 177, 473.
Redhead, 430.
Redpoll, 10, 72, 280, 439.
Lesser, 72.
Redstart, American, 8, 15, 20, 33, 51, 62, 211, 233, 423, 467.
Red-wing, Northern, 466.
Northwestern, 435.
Sonoran, 460.
Regulus calendula, 212, 424, 437 461.
calendula cinerascens, 398.
calendula grinnelli, 437.
satrapa, 63, 212, 424.
satrapa clarus, 240.
Reichenow, Ant., notice of his 'Vögel des Weltmeeres,' 337.
Remington, Charles H., and others, notice of their 'A Check-List of Rhode Island Nesting Birds,' 490.
Reservations for Birds, 498.
Rhaldornis inornata, 336.
Rhantistes, 399.
Rhinogryphus, 392.
Rhyacophilus, 346.
glareola, 346.
solitarius, 391.
Rhynchofalco, 392.
Rhynchophanes mccownii, 30.
Riddle, Oscar, notice of his 'A Study of Fundamental Bars in Feathers,' 98.

Ridgway, Robert, type locality of *Vireo pusillus*, 224; Red-spotted Bluethroat in Alaska, 226; notices of his second visit to Costa Rica, 248, 342.
Riley, J. H., notes on the Broad-winged Hawks of the West Indies, with description of a new form, 268–276.
Riparia riparia, 32, 45, 61, 73, 214, 229, 281, 439, 467.
Rissa tridactyla pollicaris, 429.
Road-runner, 458.
Robin, American, 1, 2, 7, 10, 14, 64, 74, 159, 213, 226, 424, 438, 467.
Western, 34, 55, 438, 467.
Rook, 348.
Rothschild, Walter, notice of his 'Extinct Birds,' 238–240.
Roughleg, Red, 452.
Ruff, 82.
Ryman, C. P., capture of the Flamingo at Lake Worth, Fla., 313.

Sage, John H., Twenty-fifth Stated Meeting of the American Ornithologists' Union, 74–80.
Salpinctes guadeloupensis, 397.
obsoletus, 53, 461, 467.
obsoletus guadeloupensis, 397.
obsoletus pulverius, 350.
Samuels, Edward Augustus, obituary of, 341.
Sanderling, 178.
Sandpiper, Baird's, 70, 178, 234.
Bartramian, 15, 59, 179, 213, 328, 463, 473, 484.
Buff-breasted, 81, 179, 234.
Least, 178, 431.
Pectoral, 157, 158, 178, 284, 431, 463.
Red-backed, 178, 431.
Semipalmated, 70, 178.
Sharp-tailed, 431, 484.
Sandpiper, Solitary, 9, 134, 179, 198, 463.
Spotted, 3, 5, 9, 15, 59, 70, 134, 179, 198, 417, 432, 458, 463.
Stilt, 81.
Western, 157, 159, 160, 432.
White-rumped, 178, 198, 327, 328.
Wood, 346.
Sapsucker, Northern Red-breasted, 434.
Red-naped, 434.
Yellow-bellied, 8, 14, 60, 200, 235, 278, 418, 447, 465.
Sarcops calvus, 245.
Sarcorhamphus, 369.
papa, 369.
Sass, Herbert Ravenel, an interesting Audubon specimen, 228; the Snowy Heron in South Carolina, 313.
Saucerottea cyanura guatemalæ, 240.
Saunders, Aretas A., some birds of Central Alabama, 413–424.
Saunders, Howard, obituary of, 103.
Saunders, W. E., the Worm-eating Warbler in Ontario, 319.
Sayornis, 375.
phœbe, 60, 71, 201, 279, 465.
saya, 27, 459.
Scardafella inca, 92.
Scolecophagus cyanocephalus, 29.
Scolopax gallinago, 366.
grisea, 366.
semipalmatus, 367.
Scoter, American, 156, 431.
Surf, 69, 156, 184, 431.
White-winged, 69, 156, 184, 431.
Scotiaptex nebulosa, 71, 84, 234, 433.
Seiurus aurocapillus, 19, 50, 62, 210.
motacilla, 19, 210, 423, 467.
noveboracensis notabilis, 33, 50, 73, 210, 422, 487.

Selasphorus alleni, 434.
floresii, 353.
rufus, 159, 434.
Serrator, 390.
Seton, Ernest Thompson, bird records from Great Slave Lake Region, 68–74; recent bird records from Manitoba, 450–454.
Setophaga miniata, 354.
ruticilla, 20, 35, 51, 62, 68, 211, 233, 423, 467.
Shaw, William T., notice of his 'The China or Denny Pheasant in Oregon,' 241.
Shearwater, Audubon's, 472.
Black-vented, 485.
Dark-bodied, 156.
Pink-footed, 339.
Slender-billed, 485.
Shoveller, 325, 430, 463.
Shrike, Loggerhead, 286.
Migrant, 7, 207, 281.
Northern, 49, 73, 281, 436, 467.
White-rumped, 49, 461, 467.
Shufeldt, R. W., notice of his paper on the osteology of *Sarcops*, 245.
Sialia arctica, 55, 388, 454.
azurea, 388.
currucoides, 388.
mexicana, 438.
mexicana occidentalis, 94.
sialis, 64, 191, 213, 424, 467.
sialis azurea, 388.
sialis fulva, 388.
sialis grata, 398.
Sieberocitta, 394.
Simorhynchus, 357.
Siskin, Pine, 5, 10, 11, 15, 30, 61, 203, 328, 435, 473.
Sitta canadensis, 34, 63, 212, 233, 281, 437.
carolinensis, 63, 212, 424.
carolinensis aculeata, 54.
pusilla, 212, 424.
Skua, Long-tailed, 450.
Syklark, European, 287.
Smith, Horace G., random notes on the distribution of some Colorado birds, with additions to the State avifauna, 184–191.
Smyth, Ellison A., Jr., Nelson's Finch in the mountains of Virginia, 475.
Snipe, Wilson's, 8, 15, 70, 177, 213, 431.
Snow, Francis H., obituary of, 497.
Snowbird, 72.
Snowflake, 280, 435.
Solitaire, Townsend's, 54, 437.
Somateria dresseri, 390.
mollissima dresseri, 390.
Sora, 9, 15, 176, 213, 463.
Sparrow, Acadian Sharp-tailed, 319.
Aleutian Song, 380.
Bachman's, 205, 419.
Baird's, 31, 39.
Black-chinned, 460.
Brewer's, 42, 460.
California Sage, 349.
Chipping, 8, 14, 31, 41, 61, 137, 138, 204, 419, 466, 482.
Clay-colored, 31, 42.
Dakota, 31.
Desert, 460, 483.
Desert Song, 460.
English, 203, 419, 435, 353, 467, 474, 477.
Field, 14, 61, 204, 419, 477.
Fox, 14, 73, 206, 420.
Gambel's, 72.
Golden-crowned, 435.
Grasshopper, 203, 466.
Harris's, 40, 72, 82, 187.
Henslow's, 204, 230.
Hooded, 72.
House, 287.
Intermediate, 40, 460.
Ipswich, 288.
Kadiak Fox, 349.
Lark, 15, 204, 236, 476.
Lincoln's, 42, 73, 206, 483.
Mendocino Song, 349.

Sparrow, Nelson's, 84. 318, 353, 477.
Nuttall's, 435.
Rusty Song, 159, 160, 163, 164, 166, 435.
Sandwich, 438.
Savanna, 3, 8, 61, 114, 203, 223.
Song, 1, 2, 7, 42, 61, 137, 138, 206, 379, 420.
Sooty Fox, 159, 164, 165, 349, 436.
Sooty Song, 435.
Swamp, 9, 14, 61, 73, 135, 206, 281, 420.
Townsend's, 349, 439.
Tree, 4, 5, 7, 72, 214.
Vesper, 8, 14, 61, 203, 281, 419.
Western Chipping, 435.
Western Field, 196, 204, 466.
Western Grasshopper, 39.
Western Lark, 39.
Western Savanna, 31, 39, 72. 196, 203, 435, 466.
Western Tree, 40.
Western Vesper, 31, 39, 460.
White-crowned, 5, 8, 40, 204, 319.
White-throated, 3, 8, 11, 15, 61, 72, 91, 137, 204, 419.
Spatula clypeata, 325, 430, 463.
Speotyto cunicularia becki, 399.
cunicularia hypogæa, 26, 433, 443, 453, 465.
Sphyrapicus ruber, 393.
ruber daggetti, 393.
ruber notkensis, 434.
varius, 61, 200, 418, 447, 465.
varius nuchalis, 434.
Spinus pinus, 30, 203, 328, 435, 474
xanthogaster bryanti, 334.
Spiza americana, 188, 206, 454.
Spizella atrogularis, 460.
breweri, 42, 460.
monticola, 72, 214.
monticola ochracea, 40.
pallida, 31, 42.
passerina, 378.
Spizella passerina arizonæ, 378.
pusilla, 61, 419, 477.
pusilla arenacea, 204, 466.
socialis, 31, 41, 61, 204, 378, 419, 466.
socialis arizonæ, 435.
Spoonbill, Roseate, 173.
Sporophila crissalis, 493.
morelleti, 381.
morelleti sharpei, 381.
Squatarola squatarola, 180, 432.
Starling, European, 221, 279, 287.
Steganopus tricolor, 81, 177, 234, 326, 328.
Stelgidopteryx serripennis, 165, 207, 229, 420, 436, 454, 461.
Stellerocitta, 394.
Stellula caliope, 434.
Stercorarius longicaudus, 215, 450.
parasiticus, 69, 215, 429.
pomarinus, 438, 484.
Sterna anæstheta, 336.
caspia, 325, 327.
forsteri, 283, 325, 484.
fuliginosa, 358.
fuscata, 358.
fuscata crissalis, 346.
hirundo, 69, 429.
paradisæa, 69.
sandvicensis acuflavida, 312.
Stilt, Black-necked, 177, 457.
Stone, Witmer, *Glaucidium* vs. *Noctua*, a correction, 221; European Starling (*Sturnus vulgaris*) in Pennsylvania, New Jersey, and Delaware, 221; notice of his 'Methods of Recording and Utilizing Bird Migration Data,' 488–490.
Streptoceryle, 373.
Strigiceps leucopogon, 340.
Strigidæ, 290, 370.
Strix, 288–291, 370.
accipitrina, 290.
alba, 291, 370.
aluco, 289, 290, 370.

Strix flammea, 288–290, 370.
funerea, 371.
helvola, 316, 371.
magellanicus, 392.
newtoni, 340.
occidentalis, 371.
occidentalis caurina, 371.
pratincola, 21–25, 185, 232, 234, 286, 316, 442.
stridula, 290, 370.
tengmalmi, 372.
varia, 371.
varia albogilva, 316, 371.
varia alleni, 371.
wapacuthu, 393.
Sturnella magna, 202, 466.
magna argutula, 419.
magna neglecta, 29, 377, 435, 466.
neglecta, 377.
Sturnus vulgaris, 221, 279, 376.
Sula, 352, 359.
bassana, 486.
leucogastra, 359.
sula, 336, 359.
Surnia funerea, 393.
ulula, 393.
ulula caparoch, 17, 84, 235, 433.
ulula doliata, 393.
ulula pallasi, 393.
Swallow, 349.
Bank, 8, 15, 32, 45, 61, 73, 214, 229, 281, 436, 439, 467.
Barn, 4, 8, 15, 32, 44, 61, 73, 159, 164, 165, 207, 420, 467.
Cliff, 9, 15, 32, 44, 61, 73, 214, 436, 467.
Northern Violet-green, 45, 436, 461.
Rough-winged, 14, 15, 165, 207, 420, 436, 461.
Saw-winged, 454.
Tree, 2, 7, 14, 32, 45, 73, 85, 207, 482.
White-bellied, 436.
White-breasted, 73.
Swan, Trumpeter, 284, 326.
Whistling, 70, 217, 285, 306–309, 326, 431, 463.
Sweiger, Mrs. Jacob L., obituary of, 105.
Swift, Black, 434.
Black Cloud, 166.
Chimney, 3, 8, 15, 60, 201, 317, 418.
Vaux, 434.
White-throated, 459.
Sylvia agilis, 384.
magnolia, 383.
olivacea, 383.
Symphemia, 367.
semipalmata, 234.
semipalmata inornata, 179.
Synthliboramphus antiquus, 438.
Syrnium, 290.
nebulosum, 443.
nebulosum alleni, 443.
nebulosum helveolum, 316, 371.
ululans, 290.
varium, 59, 417, 452, 464.

Tachybaptus, 356.
Tachycineta thalassina lepida, 45, 436, 461, 480.
Tachytriorchis, 392.
Talpacotia, 301, 305.
Tanagra, 381.
cyanea, 380.
Tanager, Cooper's, 461.
Louisiana, 436.
Scarlet, 4, 8, 15, 61, 189, 206, 335, 420, 454, 467.
Summer, 206, 235, 420, 467.
Western, 97.
Tanagridæ, 381.
Tangara, 381.
Tangaridæ, 381.
Tangavius, 377.
æneus involucratus, 377.
involucratus, 377.
Tantalus, 37, 363.
loculator, 38, 363.

Tatler, Wandering, 157, 160.
Taverner, P. A., four rare birds in southeastern Michigan, 327; Wilson's Phalarope and White-rumped Sandpipers in Wayne Co., Mich., 328; two Ontario records, 328.
Teal, Blue-winged, 197, 430, 463.
Cinnamon, 69, 216, 463.
Green-winged, 69, 213, 430, 463.
Telmatodytes palustris, 321.
palustris iliacus, 212.
palustris paludicola, 437.
palustris thryophilus, 399.
Terenotriccus erythrurus fulvigula, 240.
Tern, American Black, 429.
Arctic, 69.
Black, 15, 215, 462.
Cabot's, 312.
Caspian, 325, 327.
Common, 15, 429.
Crissal Sooty, 345.
Forster's, 283, 325, 484.
Gull-billed, 234.
Noddy, 332.
Royal, 312.
Sooty, 332.
Test, Charles D., Cañon Wren in Colorado, 226.
Thalasseus, 389, 399.
Thalassidroma, 358.
castro, 358.
pelagica, 358.
Thalassogeron, 389.
Thayer, Abbott H., the Buffelhead Duck, 247.
Thrasher, Brown, 15, 34, 52, 62, 211, 423, 467.
Leconte's, 461.
Sage, 51, 461.
Thrush, Alaska Hermit, 483.
Alice's, 15.
Alma's, 34, 355.
Audubon's Hermit.
Bicknell's, 34, 63.
Thrush, Dwarf Hermit, 438.
Gray-cheeked, 9, 34, 54, 73, 212, 231, 424.
Hermit, 3, 8, 14, 64, 74, 213, 424, 467, 481.
Monterey Hermit, 351.
Olive-backed, 5, 9, 15, 54, 64, 74, 137, 213, 424, 483.
Russet-backed, 159, 437.
Sierra Hermit, 351, 483.
Varied, 438.
Willow, 34.
Wilson's, 8, 15, 63, 137, 214, 282, 424.
Wood, 15, 63, 91, 212, 424, 467.
Totanus flavipes, 70, 157, 179, 220, 432, 463.
melanoleucus, 179, 213, 432, 463.
melanoleucus frazari, 399.
Towhee, 14, 20, 206, 281.
Abert's, 460.
Arctic, 31, 42.
Cañon, 188.
Green-tailed, 224.
Oregon, 436.
Townsend, Charles W., on the status of Brewster's Warbler (*Helminthophila leucobronchialis*), 65–68; an American White-fronted Goose and Wilson's Phalarope in Essex County, Massachusetts, 80.
Toxostoma lecontei, 461.
redivivum helva, 397.
redivivum pasadense, 354.
rufum, 34, 52, 62, 211, 423.
Thryomanes bewickii, 87, 211, 423.
bewickii bairdi, 385.
bewickii calophonus, 437.
bewickii cerroensis, 397.
bewickii drymœcus, 397.
bewickii eremophilus, 397.
bewickii leucogaster, 190, 385, 397.
bewickii leucophrys, 397.

Thryomanes bewickii nesophilus, 397.
leucophrys, 397.
Thryorchilus ridgwayi, 334.
Thryothorus bairdi, 385.
bewickii leucogaster, 385.
ludovicianus, 53, 211, 324, 423.
Tiaris, 399.
Tinker, A. D., the Black-crowned Night Heron in Washtenaw County, Mich., 314; breeding of the Tufted Titmouse in Washtenaw County, Mich., 322.
Titmouse, Sennett's, 350.
Tufted, 14, 212, 322, 424.
Tree-duck, Fulvous, 485.
Treganza, A. O. [notes on *Ardea herodias treganzai*], 292–296.
Tringa acuminata, 431.
alba, 367.
canutus, 157, 178.
fulicaria, 365.
glareola, 346.
leucophæa, 367.
lobata, 365.
maculata, 463.
minuta, 367.
semipalmata, 367.
Tringoides, 391.
Trochilus, 399.
colubris, 60, 201, 418, 465.
violajugulum, 353.
Troglodytes aëdon, 62, 423.
aëdon aztecus, 34, 53, 211, 355, 467.
aëdon parkmani, 355, 437.
leucogaster, 384.
ochracea ligea, 334.
Trogon, 373.
strigilatus, 373.
underwoodi, 334.
viridis, 373.
Tryngites subruficollis, 81, 179.
Turdus felivox, 385.
iliacus, 387.
jamaicensis, 387.
lereboulleti, 387.
Turdus musicus, 387.
sequoiensis, 351.
Turkey, Wild, 198, 285, 417, 439.
Turnstone, 180.
Black, 157, 159, 160, 162, 164, 432.
Ruddy, 157, 160, 368.
Tympanuchus, 392.
americanus, 439, 464.
americanus attwateri, 439.
Tyrannus tyrannus, 27, 60, 201, 418, 434, 465.
verticalis, 27, 434, 459.

Uranomitra, 348.
salvini, 348.
Uria brevirostris, 357.
lomvia, 486.
troile californica, 429.
Uropelia, 301, 305.
Urubitinga, 369, 399.

Verdin, 461.
Vermivora, 399.
celata orestera, 396.
Viguacarbo, 390.
Vireo, 382.
bellii, 189, 214.
bellii arizonæ, 396, 461.
bellii medius, 350.
bellii pusillus, 383.
flavifrons, 421.
gilvus, 49, 61, 421.
gilvus swainsoni, 436.
griseus, 383.
griseus bermudianus, 383.
griseus maynardi, 383.
griseus micrus, 383.
huttoni, 396, 436.
huttoni cognatus, 350.
huttoni oberholseri, 399.
huttoni obscurus, 396.
mailliardorum, 396.
noveboracensis, 20, 207, 383, 421.
olivaceus, 20, 32, 49, 61, 73, 189, 421.

Vireo philadelphicus, 32, 487.
pusillus, 85, 224, 383.
pusillus albatus, 85.
solitarius, 61.
solitarius alticola, 327, 421.
solitarius cassini, 436.
vicinior, 189.
Vireo, Arizona, 461.
Bell's, 189, 214.
Blue-headed, 9, 61, 207.
California Least, 85.
Cassin's, 189, 436.
Frazar's, 350.
Gray, 189.
Hutton's, 436.
Mountain Solitary, 237, 421.
Philadelphia, 15, 32, 207, 487.
Red-eyed, 9, 14, 15, 20, 32, 49, 61, 73, 137, 189, 207, 421.
Solitary, 15.
Texas, 350.
Warbling, 4, 9, 49, 61, 214, 421.
Western Warbling, 436.
White-eyed, 20, 207, 421.
Yellow-throated, 15, 207, 421.
Vireosylva, 382.
calidris barbatula, 382.
flavoviridis, 382.
gilva, 214, 382.
gilva swainsoni, 382.
olivacea, 382.
philadelphica, 382.
Vultur papa, 369.
Vulture, Black, 199, 417, 440.
Turkey, 15, 199, 232, 315, 328, 417, 432, 440.

Walter, Hubert Eugene, notice of his 'Theories of Bird Migration,' 329–333.
Warbler, Audubon's, 33, 164, 436, 461.
Bachman's, 196, 207, 421, 479.
Bay-breasted, 4, 9, 11, 12, 14, 209, 214.
Bell's, 354.
Warbler, Black and White, 3, 8, 12, 13, 33, 61, 190, 207, 231, 421.
Blackburnian, 8, 12, 13, 62, 210, 422.
Black-poll, 1, 4, 9, 10, 12, 14, 50, 62, 73, 209, 225, 422.
Black-throated Blue, 8, 11, 12, 62, 190, 422.
Black-throated Gray, 437.
Black-throated Green, 3, 9, 11, 12, 13, 62, 137, 210, 422.
Blue-winged, 16, 65, 208, 233, 328, 421.
Brewster's, 65–68, 86, 196, 208, 320, 354.
California Yellow, 350.
Cairns's, 237.
Canadian, 5, 8, 12, 13, 62, 211, 214, 423.
Cape May, 4, 9, 11, 12, 209, 479.
Cerulean, 12, 209, 238, 422.
Chestnut-sided, 9, 11, 12, 13, 16, 62, 209, 238, 422.
Cincinnati, 354.
Connecticut, 12, 281, 284.
Golden Pileolated, 437.
Golden-winged, 12, 65, 214, 284, 421.
Hooded, 12, 18, 211, 233, 423, 480.
Kentucky, 87, 210, 218, 320, 423.
Kirtland's, 12, 422, 480.
Lawrence's, 86, 354.
Lutescent, 159, 436.
Macgillivray's, 33, 437.
Magnolia, 8, 11, 12, 13, 62, 190, 209, 237, 283.
Mourning, 9, 12, 62, 210, 230, 282.
Myrtle, 4, 8, 11, 12, 14, 50, 62, 73, 137, 190, 209, 422, 436.
Nashville, 8, 12, 13, 33, 62, 137, 207, 421.
Northern Parula, 62.

Warbler, Orange-crowned, 33, 50, 421, 483.
Palm, 11, 12, 14, 214, 422.
Parula, 3, 8, 12, 421.
Pileolated, 437.
Pine, 11, 12, 197, 210, 422, 480.
Prairie, 12, 87, 210, 281, 422.
Prothonotary, 12, 14, 214, 230, 319, 320.
Swainson's, 225, 478.
Sycamore, 210.
Tennessee, 5, 9, 11, 12, 13, 14, 33, 73, 190, 209, 421.
Townsend's, 50, 437.
Western Parula, 190, 209.
Wilson's, 8, 12, 51, 73, 211, 423.
Worm-eating, 207, 319, 421.
Yellow, 3, 8, 11, 12, 14, 33, 50, 73, 159, 209, 422, 436, 467.
Yellow Palm, 422.
Yellow-throated, 422.
Ward, Henry L., occurrence of a Dovekie at Port Washington, Wis., 215; a black Robin and its albinistic tendencies, 226; Clarke's Nutcracker from Wisconsin, 318.
Warren, Edward R., notice of his 'Northwestern Colorado Bird Notes,' 492.
Water-thrush, 8.
Grinnell's, 33, 50, 73, 210, 422, 487.
Louisiana, 15, 19, 210, 423, 467.
Western, 73.
Wavey, Gray, 70.
Waxwing, Bohemian, 45–48, 436.
Cedar, 32, 48, 207, 421, 436.
Wayne, Arthur T., the breeding season of the American Barn Owl (*Strix pratincola*) in South Carolina, 21–25; Bewick's Wren (*Thryomanes bewickii*) on the coast of South Carolina, 87; the Cinnamon Teal (*Querquedula cyanoptera*) on the coast of South Carolina, 216; the Whistling Swan (*Olor columbianus*) in South Carolina, 217; three erroneus Georgia records, 229.
Whip-poor-will, 3, 15.
Whistler, 69.
Widmann, Otto, notice of his 'A Preliminary Catalog of the Birds of Missouri,' 89; another Clarke's Crow taken in Missouri, 222.
Willet, Eastern, 234.
Western, 179.
Williams, R. W., Jr., late occurrence of the Black-poll Warbler (*Dendroica striata*) in the District of Columbia, 225.
Wilsonia canadensis, 5, 6, 62, 211, 214, 423.
citrina, 384.
mitrata, 18, 211, 384, 423, 480.
pusilla, 51, 211, 423.
pusilla chryseola, 437.
pusilla pileolata, 437.
Wiskajon, 71.
Wood, J. Claire, the Savanna Sparrow breeding in Detroit and Hamtramck Village, Mich., 223; corrections to 'A List of the Land birds of Southeastern Michigan,' 230; bird notes from southeastern Michigan, 324–327; Bartramian Sandpiper in Wayne Co., Mich., 473; the Kirtland and Pine Warblers in Wayne Co., Mich., 480.
Wood, Norman A., notes on the spring migration (1907) at Ann Arbor, Michigan, 10–15.
Woodcock, American, 59, 177, 220.
Woodpecker, American Three-toed, 60.
Arctic Three-toed, 59, 139, 434.
Cabanis's, 483.
Downy, 8, 59, 139, 199, 446, 465.
Gairdner's, 434.
Gila, 458.

Woodpecker, Hairy, 59, 139, 185, 199, 465.
Harris's, 433.
Ivory-billed, 445.
Lewis's, 434, 353.
Northern Pileated, 60, 200, 231, 434.
Pileated, 139, 418, 447, 475.
Red-bellied, 14, 201, 418, 447, 465.
Red-cockaded, 196, 200, 418, 446.
Red-headed, 9, 10, 26, 200, 279, 283, 418, 447, 465, 476.
Southern Downy, 418.
Southern Hairy, 418, 446.
Texas, 458.
Woodruff, E. Seymour, a preliminary list of the birds of Shannon and Carter Counties, Missouri, 191–214; another capture of a tagged duck, 216; a tame Field Sparrow, 477.
Worcester, Dean C., notice of his papers on Philippine ornithology by, 336.
Wren, Baird's, 190.
Bewick's, 87, 211, 423.
Cañon, 87, 226, 461.
Carolina, 53, 211, 324, 423, 480.
House, 3, 8, 14. 62, 423.
Long-billed Marsh, 15, 321.
Northwest Bewick's, 437.
Pacific House, 437.
Prairie Marsh, 212.
Rock, 53, 461, 467.
San Nicolas Rock, 350.
Short-billed Marsh, 229, 320, 423.
Wren, Tulé, 323, 437.
Western House, 53, 211, 467.
Western Winter, 164, 437.
Winter, 7, 14, 63, 211, 423.
Wren-tit, 351.
Wyman, L. E., the Prairie Warbler near Chicago, 87.

Xanthocephalus xanthocephalus, 28, 466.
Xema sabinii, 484.

Yellow-legs, Greater, 14, 179, 213, 432, 463.
Lesser, 70, 135, 157. 179, 220, 432, 463.
Yellowthroat, Maryland, 423.
Northern, 9, 15, 19, 62, 211.
Pacific Coast, 33, 437.
Western, 50, 461.

Zamelodia ludoviciana, 61, 206, 233, 420.
melanocephala, 32, 43, 228, 436.
Zenaidura carolinensis, 458.
macroura, 368, 417, 432, 440, 464.
macroura carolinensis, 368.
Zonotrichia, 224, 399.
albicollis, 40, 61, 72, 91, 204, 419.
coronata, 435.
gambeli, 72.
leucophrys, 31, 40, 204, 419.
leucophrys gambeli, 460.
leucophrys intermedia, 40.
leucophrys nuttalli, 435.
querula, 72, 82, 187.

ERRATA.

Page 67, line 9 from bottom, for Richmond County read Richland County.
" 172, last line above the footnotes, for 1824 read 1842.
" 238, first line, for 'booted' read feathered.
" 312, line 11 from bottom, for August 22, 1904, read August 31, 1904, and August 4, 1906.

For additional corrections see page 250.

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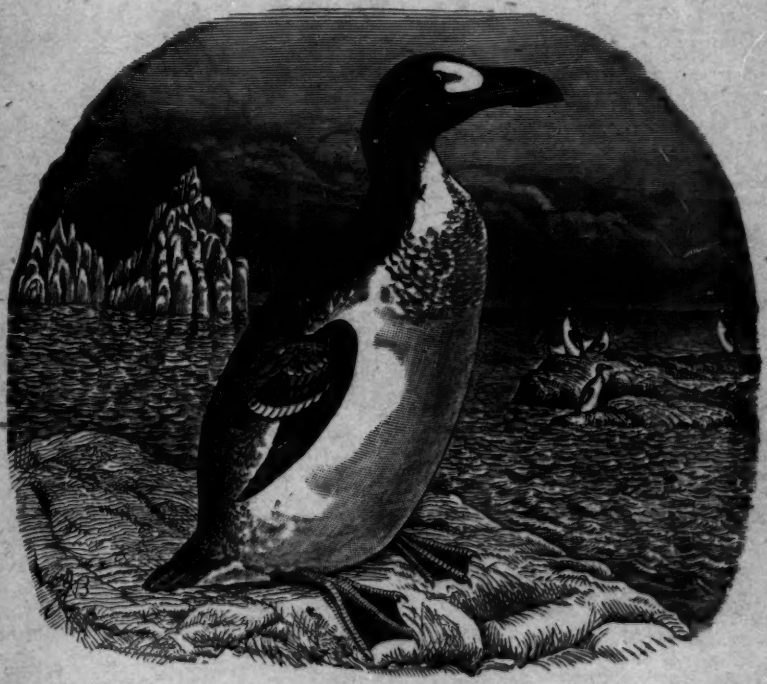

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CONTENTS.

PAGE

THE COPPER-PLATES OF THE FOLIO EDITION OF AUDUBON'S 'BIRDS OF AMERICA,' WITH A BRIEF SKETCH OF THE ENGRAVERS. By *Ruthven Deane* 401

SOME BIRDS OF CENTRAL ALABAMA. By *Aretas A. Saunders* 413

BIRDS OF THE BELLINGHAM BAY REGION. By *J. M. Edson* 425

LIST OF THE BIRDS OF LOUISIANA. PART V. By *G. E. Beyer, Andrew Allison,* [redacted] and *H. H. Kopman* 439

THE KING CAMEOS OF AUDUBON. By *C. Hart Merriam.* (Plate VII.) 448

RECENT BIRD RECORDS FROM MANITOBA. By *Ernest Thompson Seton* 450

BIRDS OF THE REGION ABOUT NEEDLES, CALIFORNIA. By *N. Hollister.* (Plate VIII.) 455

THE BIRDS OF THE ROSEBUD INDIAN RESERVATION, SOUTH DAKOTA. By *Albert B. Reagan* 462

CHANGES OF PLUMAGE IN *Buteo swainsoni.* By *E. S. Cameron* 468

GENERAL NOTES.— Breeding of the Loon in Pennsylvania, 471; A Note on the Audubon Shearwater, 472; Lead Poisoning in Ducks, 472; Masked Duck (*Nomonyx dominicus*) in Chatham Co., Georgia, 472; *Ardea egretta* in New Jersey, 473; American Avocet (*Recurvirostra americana*) in Camden Co., Ga., 473; Bartramian Sandpiper in Wayne Co., Mich., 473; Krider's Hawk and the English Sparrow Nesting together, 474; Migration of Hawks, 474; Turkey Buzzard (*Cathartes aura*) in Northern Illinois, 475; Pileated Woodpecker near Litchfield, Conn., 475; Nelson's Finch in the Mountains of Virginia, 475; Lark Sparrow (*Chondestes grammacus*) in Camden Co., Ga., 476; Lark Sparrow in Southwestern Pennsylvania, 476; *Chondestes grammacus* at Ipswich, Mass., 476; A Tame Field Sparrow, 477; Destruction of English Sparrows, 477; Swainson's Warbler and Chuck-will's-widow Breeding North of the James River, Virginia, 478; Bachman's Warbler in Camden Co. and Breeding in Chatham Co., Ga., 479; Cape May Warbler in Camden Co., Ga., 479; The Kirtland and Pine Warblers in Wayne Co., Mich., 480; The Hooded Warbler a Summer Resident in Greene Co., N. Y., 480; Breeding of the Carolina Wren in Rhode Island, 480; The Blue-gray Gnatcatcher in Southeastern Pennsylvania, 481; The Hermit Thrush as a Summer Resident of Long Island, N. Y., 481; Records from Bloomington, Ind., 482; New and Unpublished Records from Washington, 482; Averaging Migration Dates, 484; Ontario Bird Notes, 486.

RECENT LITERATURE.— Stone on 'Methods of Recording and Utilizing Bird-Migration Data,' 488; Birds of the New Haven Region, 490; 'A Check List of Rhode Island Nesting Birds,' 490; Penard's Birds of Guiana, 491; Forbes's Statistical Study of the Mid-Summer Bird Life of Illinois, 491; Warren on Birds of Northwestern Colorado, 492; Howell on Winter Birds of Northern Louisiana, 493; Birds of Yellowstone Park, 493; Carriker on New Birds from Costa Rica, 493; Mrs. Miller's 'The Bird Our Brother,' 493.

CORRESPONDENCE.— Membership Conditions in the A. O. U., 494.

NOTES AND NEWS.— Obituary: J. V. Barboza du Bocage, 496, Francis H. Snow, 497. A New Museum of Vertebrate Zoölogy in California, 497; 'How to Attract and Protect Wild Birds,' 497; Three New Bird Reservations, 498; Third Annual Meeting of the National Association of Audubon Societies, 498; Twenty-sixth stated Meeting of the American Ornithologists' Union, 498.

INDEX 499

ERRATA 533

CONTENTS OF VOLUME iii

OFFICERS AND MEMBERS ix

'THE AUK,' published quarterly as the Organ of the AMERICAN ORNITHOLOGISTS' UNION, is edited by Dr. J. A. ALLEN, with the assistance of Mr. FRANK M. CHAPMAN.

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(Continued on 3rd page of Cover.)